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• 111

• 112

• 113

• 114

• 115

• 116

• 117

• 118

• 119

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FOR 1892.



THE  
YEAR-BOOK OF  
TREATMENT

FOR

1892.

Dr E H Bates  
Port Chester N Y

*A CRITICAL REVIEW FOR PRACTITIONERS OF  
MEDICINE AND SURGERY.*

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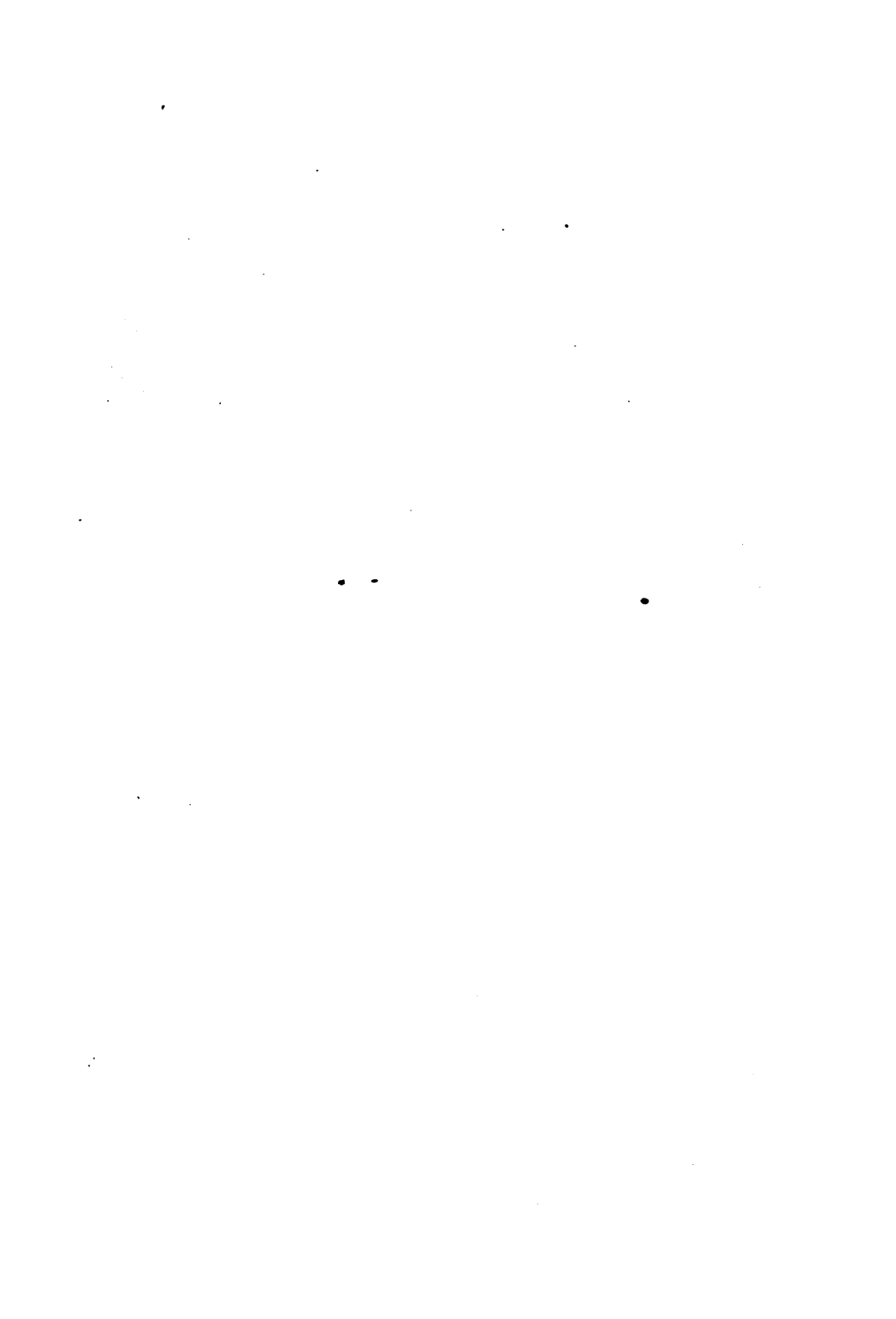
BARCLAY J. BARON, M.B.  
STANLEY BOYD, B.S., F.R.C.S.  
J. MITCHELL BRUCE, M.D.  
ALFRED COOPER, F.R.C.S.  
GEORGE P. FIELD, M.R.C.S.  
ARCHIBALD E. GARROD, M.D.  
M. HANDFIELD-JONES, M.D.  
REGINALD HARRISON, F.R.C.S.  
G. ERNEST HERMAN, M.B.  
J. ERNEST LANE, F.R.C.S.

ROBERT MAGUIRE, M.D.  
MALCOLM MORRIS, F.R.C.S.E.  
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JAMES ROSS, M.D.  
E. MARKHAM SKERRITT, M.D.  
WALTER G. SMITH, M.D.

W. J. WALSHAM, F.R.C.S.

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# CONTENTS.

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	PAGE
DISEASES OF THE HEART AND CIRCULATION. BY J. MITCHELL BRUCE, M.D., F.R.C.P. . . . .	1.
DISEASES OF THE LUNGS AND ORGANS OF RESPIRATION. BY E. MARKHAM SKERRITT, M.D. LOND., F.R.C.P. . . . .	39
DISEASES OF THE NERVOUS SYSTEM, INCLUDING INSANITY. BY JAMES ROSS, M.D., LL.D., F.R.C.P., AND ERNEST S. REYNOLDS, M.D. LOND., M.R.C.P. . . . .	87
DISEASES OF THE STOMACH, INTESTINES, LIVER, ETC. BY ROBERT MAGUIRE, M.D. LOND., F.R.C.P. . . . .	130
DISEASES OF THE KIDNEY, DIABETES, ETC. BY CHARLES HENRY RALFE, M.D. CANTAB., F.R.C.P. LONDON . . . . .	159
GOUT, RHEUMATISM, AND RHEUMATOID ARTHRITIS. BY ARCHIBALD E. GARROD, M.D. OXON., F.R.C.P. . . . .	183
INFECTIOUS FEVERS. BY SIDNEY PHILLIPS, M.D., F.R.C.P. . . . .	197



	PAGE
GENERAL SURGERY. BY STANLEY BOYD, B.S., F.R.C.S. . . . .	207
ORTHOPÆDIC SURGERY. BY W. J. WALSHAM, F.R.C.S. . . . .	258
SURGICAL DISEASES OF CHILDREN. BY EDMUND OWEN, M.B., F.R.C.S.	269
DISEASES OF THE GENITO-URINARY SYSTEM. BY REGINALD HARRISON, F.R.C.S. . . . .	283
DISEASES OF THE RECTUM. BY ALFRED COOPER, F.R.C.S. . . . .	292
VENEREAL DISEASES. BY J. ERNEST LANE, F.R.C.S. . . . .	300
THE DISEASES OF WOMEN. BY G. ERNEST HERMAN, M.B., F.R.C.P.	315
MIDWIFERY. BY M. HANDFIELD-JONES, M.D. LOND. . . . .	350
DISEASES OF THE SKIN. BY MALCOLM MORRIS, F.R.C.S.E. . . . .	388
DISEASES OF THE EYE. BY HENRY POWER, M.B., F.R.C.S. . . . .	401
DISEASES OF THE EAR. BY GEORGE P. FIELD, M.R.C.S. . . . .	418
DISEASES OF THE THROAT AND NOSE. BY BARCLAY J. BARON, M.B., C.M. EDIN. . . . .	429
SUMMARY OF THE THERAPEUTICS OF THE YEAR 1890-91. BY WALTER G. SMITH, M.D. UNIV. DUBLIN . . . . .	448

CONTENTS.

vii

PAGE

SELECTED LIST OF NEW BOOKS, NEW EDITIONS AND TRANSLATIONS 457

INDEX TO AUTHORS QUOTED . . . . . 473

INDEX TO SUBJECTS . . . . . 478



THE  
YEAR-BOOK OF TREATMENT  
FOR 1892.

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DISEASES OF THE HEART AND  
CIRCULATION.

By J. MITCHELL BRUCE, M.D., F.R.C.P.,

Physician to Charing Cross Hospital, and to the Hospital for Consumption and Diseases of the Chest, Brompton; Lecturer on the Principles and Practice of Medicine, Charing Cross Hospital Medical School.

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THE advances which have been made in the treatment of Diseases of the Heart and Circulation during the last twelve months will be noticed in the following natural order:—I. Acute Cardiac Diseases. II. Failure of Compensation and the Selection of Cardiac Tonics. III. The Symptomatic Treatment of Chronic Cardiac Disease. IV. Diet in Chronic Heart Disease. V. Non-Valvular Disease of the Heart. VI. Cardiac Strain and its Treatment. VII. Functional Diseases of the Heart. VIII. Angina Pectoris. IX. Graves's Disease.

I.—ACUTE CARDIAC DISEASES.

**I. Acute endocarditis.**

Professor Fraentzel, of Berlin (*Vorlesungen über die Krankheiten des Herzens*, II. Berlin, 1891, p. 57), is particularly unsatisfactory and disappointing in his account of the treatment of simple acute endocarditis. He looks to bacteriology for his indications; and failing to find any drug which could be expected to destroy the hypothetical organisms of acute rheumatism which he believes to flourish in the valvular lesion, he concludes that the kind of treatment to be adopted must be expectant, broken by various attempts at the inunction of mercurial ointment, or the internal use of

calomel in small doses. One looks in vain in the German professor's book for any direct reference to the indication which is generally regarded in England as the most important of all in acute endocarditis—viz., to combat with every activity the rheumatic process, by means of salicylates and correct general and dietetic treatment.

**Dr. A. McPhredan**, of Toronto (*The Medical Record*, p. 134, Aug., 1891), discussing the cardiac phenomena of rheumatism, regarded the immediate prognosis of the cardiac lesion as favourable, because in young children, in whom the lesion is most apt to occur, compensation is more quickly established and more complete. Therefore it is but seldom that cyanosis or dropsy occurs in these subjects. In older patients the prognosis depends on the extent of the sclerotic and atheromatous changes. In the well-to-do the prognosis is better, because they are subject to less exposure and to less violent exertion. As regards treatment, while we cannot prevent rheumatism, we can save the heart in many cases by arresting the rheumatic process with alkalies or the salicylates, by promoting excretion to purify the blood, by good nourishment in the form of light liquid food, and by rest—particularly in children. Great caution must be exercised in the use of alkalies in anæmic cases, for they may cause the cardiac lesion by increasing the anæmia. In such instances iron is of the greatest value. **Dr. Macallum** said that he considered that a patient after convalescence should be put on a course of alkalies, iodide of potassium and iron for the space of a year. **Dr. C. Sheard** regarded iron as useless in the anæmia of endocarditis, unless the patient was enjoying perfect rest. He believed this to be true of the use of iron in all cases of anæmia. He gave preference to salicylates, but for a year following the attack he would prescribe alkalies.

**Professor Fraentzel** (*op. cit.*, p. 31) describes the present means of treating acute malignant (ulcerative) endocarditis as unavailing. Every kind of antipyretic and disinfectant has been tried in vain. Attention is anxiously directed to feeding and stimulation; but even these measures have to be relinquished in consequence of the unconscious condition into which the patient falls, and nutrient and medicinal enemata finally are rejected.

In the *subacute and chronic* forms of malignant (ulcerative) endocarditis, treatment is more hopeful. Little scientific importance can be attached, it is true, to the results which are credited to this or that drug in this grave disease, such as mercury, the antipyretics, and digitalis. Still, a certain percentage of cases do recover, and Professor Fraentzel expresses some confidence in the



use of a method of treatment combining the actions of quinine and alcohol. He prescribes from 7 to 15 grains of quinine, two or three times a day at first, being careful not to exhibit larger doses than 1 gramme, which would affect the nervous system unfavourably, and do more harm than good, whilst he looks on smaller doses as perfectly useless. If the pyrexia decline in the course of a few days, he reduces the frequency of the dose, not its size; and he continues to watch the case and modify the dose as may be indicated. With the quinine he orders alcohol, preferably in the form of a good, but not too strong, red wine; in the form of spirits, or even as beer, only if the wine be not relished or disagree.

Dr. Frederick Taylor (*Brit. Med. Journal*, vol. i., 1891, p. 530), in a paper on ulcerative endocarditis read before the Metropolitan Counties Branch of the British Medical Association, remarks that observations are more and more tending to confirm the view that "ulcerative" endocarditis is not due to one particular organism, but may result from the invasion of the organisms of different diseases; for there are said to have been found those of septicaemia, pyaemia, pneumonia, typhoid fever, and tuberculosis, as well as six others not present in other diseases. In different cases the valves may be differently affected according to the particular organisms concerned. Clinically it is of the greatest interest to note the diseases with which any case of ulcerative endocarditis is associated, as bearing upon its course and complications. Thus it has been noticed by more than one observer that septic endocarditis following pneumonia attacks especially the aortic valves, and is sometimes accompanied by suppurative meningitis.

## 2. Acute pericarditis.

Professor Fraentzel (*op. cit.*, p. 268) begins his treatment of acute pericarditis by leeching or cupping the præcordium. He also recommends the ice-bag—not cold compresses, nor warm applications of any kind. At the same time, the bowels must be daily evacuated, and salicylate of sodium prescribed for rheumatic cases, unless the arthritis have already disappeared, in which event digitalis and mercury should be prescribed until salivation threatens. Diuretics, such as acetate of potassium, are indicated in other cases.

With respect to operation in acute pericarditis, Professor Fraentzel says:—"Of a pericardial exudation no one ever died;" and he considers that paracentesis pericardii is unnecessary, because it is not indicated.

## 3. Incision for suppurative pericarditis.

Dr. Hermann Bronner (*Brit. Med. Journal*, p. 350, Feb. 14, 1891) records a most instructive case of pus in the pericardium, which

was treated by incision and drainage. The patient, a healthy girl of eleven, had up to February 15th, 1890, enjoyed perfect health. On that day she felt ill, her pulse was 100, and the temperature  $101.5^{\circ}$ , and she vomited. On the sixteenth day of illness the presence of pus in the right pleura was confirmed by aspiration, and three days later 30 ozs. of sweet pus were withdrawn. The pyrexia continuing, the cavity was washed out with boric acid solution. The pulse and respirations were still undiminished eight days later, with slight increase of the area of dulness over the heart and faintness of the heart sounds; and the possibility of pericarditis was mooted. In the course of the following two days dyspnœa increased very markedly, and the increase of the area of dulness over the pericardium became unmistakable. On March 20th severe dyspnœa ensued, and the pulse was almost imperceptible. Dr. Major, in consultation, advised speedy aspiration of the pericardial fluid, and incision with subsequent drainage should pus be found. The incision was made by Mr. Pridgin Teale in the fourth intercostal space, beyond the mammary artery; and, to use his words, "the heart never seemed to come near either the trocar or the scalpel." Nearly two pints of sweet, thick pus escaped. The wound was drained, and sublimate gauze pads used as a dressing. The relief afforded by the operation was very great. As the temperature, pulse, and respiration had not diminished much, notwithstanding the injection of a solution of iodoform in sterilised glycerine into the pericardial cavity, it was decided, on the eleventh day after operation, to syringe out the pericardial cavity, although the pus had always been sweet. Two tubes were inserted side by side, to give free egress to the fluid and to prevent any pressure on the heart. Accordingly the irrigation of the pericardial sac with a 5 per cent. solution of boric acid at  $100^{\circ}$  was carried out with all precaution, and never seemed to affect the heart's action in the least. In this respect this case corroborates the two successful cases previously recorded by Dr. Rosenstein, of Leyden, and Dr. Samuel West, of London. The syringing with boric acid was continued daily without any ill effects on the pulse for eleven days. Great care then became necessary with the irrigations as the pulse was steadily becoming weaker; and on the sixtieth day of illness, the twenty-sixth after the incision into the pericardium, the child sank fast and died in the act of vomiting. In this case there was no obliteration of the pericardial sac of any extent after twenty-six days, nor did the pus diminish in quantity or thickness sufficiently to warrant the withdrawal of the drainage tube. The absence of a *post-mortem* examination is unfortunate.



Dr. Samuel West (*Brit. Med. Journal*, p. 404, Feb. 21, 1891) furnishes some interesting remarks on the treatment of purulent pericarditis in connection with the preceding case. The dangers of surgical interference with the pericardium are greatly exaggerated. The only risk, wounding the heart, may with care be avoided. Exploratory punctures and paracentesis are much more risky than incision. He has tapped the pericardium several times, and without a single misadventure. On one occasion he was alarmed by getting nothing but a jet of blood. He at once removed the needle, but the patient was greatly relieved and rapidly improved. The chief risk is that the diagnosis is incorrect, and the difficulties are in some cases considerable in distinguishing between a greatly distended heart and pericardial effusion. Even then it is a laceration, not a clean puncture through the walls of the heart, that is dangerous, for the latter has frequently occurred as the result of accident, and has even been deliberately performed with the object of tapping a greatly distended cavity. The dangers, again, of the rapid removal of fluid are, Dr. West believes, for the most part imaginary. In his published case, the incision was followed by a gush of pus which spouted out eight or ten inches from the chest; in a few seconds fully two quarts were evacuated, and that without any bad symptoms or even faintness; on the contrary, with immediate relief. Washing out the pericardium also inspires much fear in the minds of some writers, and with little real ground. In his case, the pericardium was many times washed out, and always without harm. Dr. West further records the fact that his patient whose pericardium was opened, washed out, and drained, has developed into a full-grown man, above the average weight and height. Although the pericardium must be universally adherent, there are no physical signs to indicate this. Except for the scar, there is nothing to indicate that he ever had anything the matter with him. He has been for years in active employment, being capable of exertion in ordinary muscular work, and has been cautioned only against violent muscular effort.

## II.—FAILURE OF COMPENSATION; AND THE SELECTION OF CARDIAC TONICS.

### 4. General review of cardiac remedies.

Professor Fraentzel (*op. cit.*, p. 210) reviews the whole treatment of chronic valvular disease. He begins with an earnest protest against the indiscriminate use of digitalis the moment a murmur has been discovered over the heart, from which he declares 2



certain number of practitioners have not even yet been able to emancipate themselves.

When compensation threatens to fail, the simplest remedies to be employed of a medicinal kind are purgatives and diuretics. A little rhubarb or liquorice powder may suffice, taken for a short period; or colocynth and compound infusion of senna if a more drastic effect appears called for. Simple household diuretics are enough at first, but may presently have to be supplemented with squill, quinine, and digitalis. If cardiac failure become more declared, other measures must be tried; but still digitalis ought to be held in reserve, and valerian is a very valuable substitute for it at this stage, according to Professor Fraentzel. It is at this stage also that the results obtained from drugs are so puzzling, because they are so different in different subjects, and in the same patient on different occasions. The observations of Krehl on the condition of the myocardium in chronic valvular disease (*Year-Book* for 1891, p. 23) will probably throw light on these discrepancies—particularly when the whole subject has been more thoroughly investigated.

Rupture of compensation having definitely set in, the proper course is to hesitate no longer but order digitalis—not any of its substitutes; to be stopped again as soon as improvement occurs. The infusion is the most suitable preparation; but in the selection of the forms, as well as in the management of the dose, and in the removal or other modification of the use of the drug, there is abundant opportunity for the practitioner to display his skill and experience as a therapist. The Prussian professor does not believe in the tincture nor in the acetum of digitalis. If the stomach become irritable, he recommends the infusion to be given cold in a concentrated form, so as to avoid bulk. He recognises the effects occasionally obtained from strophanthus, but dwells on the uncertainty of its action [probably referable in some cases to the use of impure or false specimens of the drug].

In failure of compensation, the author is altogether opposed to the employment of baths and massage at the places which have been vaunted as of great value in the treatment of diseases of the heart. At this stage of their illness cardiac patients can only be injured by such treatment, fresh endocarditis being set up, which may become malignant.

In the compensated heart Professor Fraentzel has no objection to his patients betaking themselves for a change to Wiesbaden, Oeynhausen, Kissingen, or Nauheim. Such patients are benefited by a little active treatment, and are more satisfied when permitted to try a method which has lately acquired considerable repute—

thanks chiefly to the amount of writing on the subject by the resident physicians.

Dr. P. H. Pye-Smith (*The Lancet*, vol. ii., p. 821, 1890), in his address delivered before the Hunterian Society, reviews certain measures for the treatment of valvular disease of the heart. *Strophanthus* is often a useful substitute after the long-continued use of *digitalis*, giving in his experience the best results in the treatment of mitral incompetence in children. The action of *convallaria* is very similar, but weaker; and this drug is better as a diuretic than as a direct cardiac tonic. *Digitalis* is frequently uncertain, and sometimes dangerous in aortic valvular disease uncomplicated by dropsy or venous congestion. Iron when well borne, strychnine, and, in many cases, arsenic are valuable. Careful attention to diet often affords the most relief, ensuring perfect digestion and the avoidance of flatulence. The effects of *belladonna* on aortic valvular disease he found disappointing. When there are pain, headache, and symptoms resembling those of aortic aneurysm, or attacks resembling angina pectoris, nitroglycerine and nitrite of amyl are extremely valuable remedies; but in many cases the application of leeches over the sternum, or small and repeated bleedings from the arm, are more efficient than any drugs. Ether—particularly as Hoffman's anodyne—strychnine, and aromatic spirit of ammonia, are very useful in the cardiac dyspnoea and distress which accompany most cases of aortic disease. Opium is usually contra-indicated in advanced mitral disease with anasarca; but in aortic disease this drug, in the form of laudanum or Dover's powder, may frequently be given at night with great relief and no bad effects. The opium should be given by the mouth rather than hypodermically. Potassium bromide and chloral often produce unpleasant effects; and in restlessness and discomfort, tincture of hyoseyamus, given in hot brandy and water, is useful. For the severe headache of cardiac disease antipyrin is dangerous and uncertain. Paraldehyde has been much used, but often fails to secure sleep; chloralamide in twenty-grain doses frequently acts extremely well. The proper employment of venesection is of great importance in cardiac disease. In aortic disease, when the pain and other symptoms resemble those in aortic aneurysm, the abstraction of from four to six ounces of blood is sometimes very effectual. When the right heart is distended, the whole venous system engorged, the skin cyanotic, and the pulse small, weak, and fluttering, moderate bleeding may give relief, but is seldom of lasting benefit. Certel's treatment did not seem to Dr. Pye-Smith to have either physiology or experience in its favour.



Professor Curnow (*The Med. Press and Circular*, p. 353, April 8, 1891) discussed the question of cardiac failure and its treatment before the West Kent Medico-Chirurgical Society, and reviewed in particular the onset of cardiac failure in aortic and mitral disease. He advised a careful scepticism as to the value of most of the newer drugs used in cardiac failure. He much preferred digitalis to strophanthus, which, although frequently used, had not benefited his patients. Morphine hypodermically and small doses of brandy were much praised for the relief of insomnia and dyspnoea; and special stress was laid on treatment by food, and the careful watching and relief of dyspeptic and other complications.

Dr. F. P. Henry (*The Med. News*, vol. lviii., Jan. 3, 1891), in a clinical lecture, deals with the efficiency and non-efficiency of digitalis in the treatment of different stages of valvular diseases. In the first, or stage of eusystole, when compensation is well maintained, the drug is useless, and may even be injurious. In the second stage, that of hypersystole, when the heart is becoming hypertrophied, digitalis is also decidedly injurious. We must use drugs such as the bromides, morphine, and aconite, associated with a bland diet, in which the only animal ingredients are milk and eggs. The third stage, a condition of hyposystole, begins with dyspnoea on slight exertion, a sure sign that the circulation is approaching the venous type. In this stage one of the preparations of digitalis may be employed. We must not be disappointed if we do not obtain immediate results. The urinary secretion may not be decidedly increased till forty-eight hours after the treatment has commenced, when it will rise to more than one hundred ounces. We may then stop the digitalis and administer caffeine to maintain diuresis. There are certain points connected with the action of this drug which by the inexperienced are at times thought to be the effects of the disease itself. For example, it sometimes renders the pulse very unstable, slight exertion making it rapidly rise to a high point. Consequently, the best effects of the drug are secured by keeping the patient quiet, not allowing him to sit up until the equilibrium is properly restored.

In an editorial article in *The Therapeutic Gazette*, March 16, 1891, it is remarked that some of the contra-indications that may be present in disease, prohibiting or suggesting great caution in the use of digitalis, or a remedy having a similar action, are congestion and inflammatory obstruction in the pulmonary structures, degenerative changes in the muscular system, including the heart; general interruption of the nutritive processes, with accumulation of serum in the tissues; sudden cardiac failure; and

all the conditions in which the heart-beats are less than normal. If we wish to select a remedy to combat a failing circulation, all the structural changes and diminished or lost functions must be accurately studied, and the influences resulting therefrom duly considered. It is impossible, without the intelligence accruing from such a consideration of a given case, to apply a proper drug, no matter how well known its action may be. Strychnine seems to fulfil all the indications in the morbid condition under notice. The action of this drug being expended upon the spinal cord, and this part of the nervous system in conjunction with the sympathetic playing an important rôle in repairing and maintaining the various processes of organic life, it is natural to infer that an intelligent stimulation of its functional activity would, under such circumstances, be a rational proceeding, provided no structural lesion exist in its substance. Until there is the desired response, we may give  $\frac{1}{60}$  grain of the sulphate of strychnine hypodermically every two hours, or oftener if required. Dr. Bradfute has made the interesting observation that in such conditions the drug is easily borne in large doses, especially if the patient has been taking large amounts of alcohol; and he has administered as much as four grains in twenty-four hours without producing any toxic symptoms. A typical case for the exhibition of strychnine is the failing circulation of diphtheria.

Dr. William A. Hammond, of Washington (*The Therapeutic Gazette*, vol. xiv., p. 667, 1890), writing on weak heart and its treatment, says that of all the preparations of digitalis he prefers the infusion made from the fresh leaves. Convallaria cannot, he considers, in any respect be compared to digitalis as a cardiac tonic. It is uncertain in its action, and scarcely deserves to be considered as a medicine capable of giving strength to an enfeebled heart. It does not increase the force of the cardiac pulsations, nor does it lessen their frequency. A far more valuable remedy is strophanthus, though even this agent is not comparable to digitalis. It appears to Dr. Hammond to bear the same relation to digitalis that brucine does to strychnine; and when administered with a view to its tonic effect upon the heart it should be given in much larger doses than those ordinarily prescribed. Dr. Hammond has derived very great benefit in the treatment of weak heart from strychnine in gradually increasing doses. He generally begins with one grain of the sulphate of strychnine to one ounce of dilute phosphoric acid, giving ten drops three times the first day, and then increases the dose by one drop daily until some indication of the physiological action of the strychnine is obtained. This usually consists in a



slight rigidity of the muscles of the neck or calves of the legs. The administration is then stopped for a day or two, to be resumed as before. The action of cocaine as a heart tonic is readily perceived by the stethoscope, the sphygmograph, and by feeling the pulse. Its influence is markedly shown in the ability which it gives the patient to take increased exercise without suffering from dyspnoea or inordinate cardiac action. Its administration may be commenced with a dose of one-sixth of a grain three times daily, gradually increased in the course of a month to one grain. It is best given with wine. Cocaine appears to possess the property of exhibiting its effects without an augmentation of the dose; and the original quantity may be continued indefinitely, not only without deleterious effects, but with markedly beneficial results.

Dr. Solis Cohen (*The Therapeutic Gazette*, Feb. 16, 1891) considers that the indications for treatment in cases of mitral stenosis should be: (1) to prolong the ventricular diastole, so that as much blood as possible may get through the narrowed orifice; (2) to strengthen the heart-muscle, so that the auricular contraction may be as effective as possible; and (3) when mitral regurgitation co-exists, to lower peripheral blood-pressure. The two indications of uncomplicated stenosis are fulfilled by iron and arsenic as nutritives, and strychnine and caffeine as cardiac tonics, whilst digitalis and the nitrites are useful when the double lesion exists.

Dr. Solis Cohen's advice in a case of aortic regurgitation is to postpone the use of digitalis until other measures have proved inefficient. A combination of atropine, strychnine, and caffeine is most useful, with the occasional employment of the nitrites.

Dr. C. S. Bradfute (*New York Med. Journal*, Jan. 10, 1891) considers strychnine, if not the best, at least one of the best cardiac stimulants. Its objectionable features can, to a certain extent, be mitigated by combining other remedies. Strychnine is very diffusible; it acts quickly, and the effect is sustained. When a medicinal dose is administered hypodermically, the heart at once responds by an increase in the strength of its movements, the arterioles contract, and the blood-pressure rises. At the same time the irritability of the sensory and motor nerves and the excitability of the muscular tissue are greatly increased, thus promoting nutrition changes and mechanically favouring a rapid blood-current. A spasmodic contraction of the renal capillaries is likely to occur if large doses are given, but the interference with the kidney secretion can be obviated by diuretics having a selective action upon the urinary organs. The stimulation produced by strychnine is not confined to the circulatory system, but is general,

and in many respects very much resembles the effects of heat. Its tonic action on the digestive function, with the diffused stimulation of the circulatory system, must certainly result in a supply of better blood to the nerve-centres, and consequently to promotion of the vital functions. A curious fact in connection with the action of strychnine is that the weaker the circulation the larger is the amount necessary. Its action seems to be in a way neutralised by the causes inducing the weakness, in some instances rapidly increasing doses being required to maintain the effect.

Alcohol is a safe and effective heart-stimulant when intelligently used. It possesses the advantage of being comparatively non-toxic, and can be administered for a longer period than some of the other heart tonics without deleterious effects. Its influence upon the processes of nutrition renders it especially adapted to those long-continued cases of gradual circulatory failure which are encountered so frequently in the low fevers. But its effectiveness in cases of sudden or profound cardiac failure occurring in the course of acute maladies, such as pneumonia, in which large amounts must be given, either by the mouth or hypodermically, is open to doubt, since the profound depression that follows its exhibition in large doses must certainly conduce to an unfavourable result. It may be correctly regarded as a prophylactic rather than as an active combative agent.

Caffeine and cocaine are of undoubted value as heart stimulants in simple weakness, when there is no reason to suspect that this is a premonition of beginning failure. The action of the former is fugacious, owing to its chemical instability. Dr. Bradfute has seen the delirium of typhoid fever markedly increased by cocaine. These drugs, like alcohol, may be better classed as prophylactics.

Ammonia has been spoken of as the most powerful cardiac stimulant, but its action is transient. To obtain a satisfactory effect, it must be administered at short intervals—every half-hour or hour. It cannot be used hypodermically.

Atropine is justly regarded by many as a cardiac stimulant, but it really is more of a respiratory stimulant, and is only adapted to certain cases. When given in large doses it locks up the secretions, and must necessarily interfere with nutrition and lessen the excretion of waste products. On this account it cannot be safely employed when uræmia is present.

Baldo Zaniboni (*St. Louis Weekly Med. Rev.*, p. 164, Feb. 28, 1891) publishes the following definite conclusions on the value of strychnine in heart disease, which he has arrived at from a careful study of numerous clinical observations:—Nitrate of strychnine is undoubtedly a powerful heart stimulant. It strengthens systole,



lengthens diastole, overcomes irregularity, and raises the arterial pressure. It obviates acute dilatation and the danger of cardiac incompetence. By its use, respiration becomes more free, and attacks of dyspnoea are prevented. Strychnine is powerless only when the nervous and muscular elements of the heart are no longer capable of stimulation. Œdema which has resisted digitalis can be made to disappear through strychnine; under its use, diuresis becomes abundant, but no albuminuria is occasioned, nor do the phosphates in the urine increase. The hypodermic administration of strychnine nitrate occasions no inconvenience. The dose for the beginning is  $\frac{1}{60}$  of a grain three times a day. This may be gradually increased to  $\frac{1}{30}$  of a grain. When the medicine is discontinued, no disagreeable symptoms occur from the abstinence. No cumulative effects have been noticed.

Professor Germain Sée, in *La Médecine Moderne*, Dec. 11, 1890, carefully analyses a paper by Drs. Rummo and Ferranini (*The Therapeutic Gazette*, p. 118, vol. xv., 1891), in which they point out that we should ask the following questions when we recognise cardiac insufficiency:—Is the insufficiency due to an irreparable destruction of the myocardium? Is it due to degeneration of its fibres? Is it simply the result of a temporary enfeeblement, and independent of all degeneration? From such considerations the writers have sought to determine experimentally which of the cardiac remedies have a special action on the vessels, which on the muscular apparatus, and which on the nervous system of the heart. They found that caffeine and sparteine particularly influence the innervation of the heart. Other remedies, such as helleborin, and very particularly strophanthin, produce a stimulating action on the myocardium, while they do not influence the nervous system of the heart: nerium oleander, digitalin, erythrophline, cocaine, and convallamarin act principally on the myocardium. The authors, therefore, conclude that in cardiac cases, where there is loss of power in the heart, caffeine and sparteine should be prescribed. Strophanthin should be resorted to when there is feebleness of the heart, occurring in patients suffering from insufficiency and from aortic stenosis, or whenever the resistance is situated in the systemic circulation. Prof. Germain Sée is in accord with these views, though he regards as an important omission the fact that iodide of potassium is not included in this group of remedies. He believes that there can be no possible treatment of cardiac affections which does not take into consideration the diuretic action of this remedy and of lactose, as well as the influence of iodide of potassium on the organs of circulation.

### 5. Chloride of barium.

Dr. J. S. Carpenter (*The Medical News*, July 25, 1891) discusses the use of chloride of barium as a cardiac tonic where digitalis is unsuitable. He recommends that the dose at first should be half a drachm of a one per cent. solution, which may gradually be increased to two drachms. Some caution is, however, necessary in its administration; and it is always advisable to begin with a small dose. He mentions a case in point. He had given to a lady, aged thirty-one, one grain and a half to be taken three times a day. After the third dose she was seized with most alarming symptoms of gastro-enteritis and collapse; but she recovered after suitable treatment. Barium is, therefore, a remedy to be used with great caution, but with this proviso it seems likely to be useful in some cases.

### 6. Cactus grandiflorus.

Dr. C. L. Gregory (*The Therapeutic Gazette*, p. 426, vol. xv., No. 6, 1891) considers that cactus grandiflorus is beyond any question one of the most valuable remedies we possess in the treatment of diseases of the circulatory and nervous systems. He has employed it since 1874, principally in chronic diseases, but recently he has used it in cardiac dilatation with anasarca of the lower limbs. He uses a tincture of the recent plant in the proportion of four ounces to the pint of alcohol.

Dr. John Aulde, of Philadelphia (*The Therapeutic Gazette*, p. 313, vol. xv., 1891) considers that cactus grandiflorus is distinctly a cardiac tonic, free from the so-called cumulative action of digitalis. It promises to effect good results in dilatation with anasarca, with or without valvular disease, even when digitalis, diuretics, and cathartics have failed.

Dr. Alfred K. Hills (*The New York Med. Times*, p. 295, Jan., 1891), considering cactus grandiflorus as a substitute for digitalis, says that the former cannot be substituted for the latter upon any but theoretical grounds. "Cactus," he says, "proves palliative in cases of hypertrophy of the heart where dilatation is not predominant; digitalis in cases where dilatation and the pulse show feebleness. In its effect upon the heart, cactus resembles aconite much more than it does digitalis."

According to Dr. O. M. Myers (*New York Med. Journal*, June 13, 1891), cactina, the proximate principle of *Cereus grandiflorus*, increases the musculo-motor energy of the heart, probably through its influence upon the intra-cardiac ganglia, in consequence of which the cardiac impulses become regular and much stronger. It also elevates the arterial tension, increasing the height and force of the pulse wave. This is produced partly by increased



cardiac action, partly by stimulation of the vaso-motor centre. It also possesses direct action upon the motor centres of the cord, thus increasing the reflexes and elevating the general nervous tone. Clinical experience shows that its greatest value is in functional disturbances of the heart, in simple dilatation, in dilatation following valvular disease, and in conditions of cardiac and general muscular relaxation with impaired nerve energy. It is also useful during the critical periods of adynamic fevers. It has no tendency to produce gastric disturbance, in which respect it is superior to digitalis.

### III.—THE SYMPTOMATIC TREATMENT OF CHRONIC CARDIAC DISEASE.

#### 7. Venesection in cardiac disease.

Dr. Pye-Smith (*The Lancet*, Jan. 31, 1891) communicated a paper to the Royal Medical and Chirurgical Society on the therapeutical value of venesection, its indications and its limits. He considers venesection useful in cyanosis with distension of the right side of the heart, whether from pulmonary or from some other obstruction to the circulation; in the intense pain of aortic aneurysm; and in uræmic and prolonged epileptic convulsions. In the discussion that followed, Dr. Stephen Mackenzie remarked that he had found venesection of great practical benefit in many cases of over-distension of the right\*ventricle. It gives great relief in capillary bronchitis and is sometimes curative, and in pneumonia it often gives the best results.

Dr. H. A. Laffeur, of Baltimore (*Medical News*, p. 7, vol. ii., 1891) finds but little to add to the conclusions of Dr. Pye-Smith as to the indications for venesection, and its relative value in the various classes of cases which require its performance. Huchard advocates small bleedings from time to time in the first stages of arterial sclerosis, and thinks that in this way it may be possible to lessen and even delay the evils resulting from prolonged high vascular tension. He insists particularly on the value of venesection in the later stages of the same disease, when the left ventricle is no longer able to cope with the increased peripheral resistance and volume of blood, and the heart is in danger of sudden arrest. This may occur even when there is but little œdema or cyanosis, though there is usually engorgement of the right side of the heart and of the veins. In addition to its purely mechanical effect, venesection removes from the blood a considerable amount of toxic material, which has accumulated in it owing to the imperfect per-

formance of the functions of the kidneys and liver, these viscera being usually more or less affected by the general arterial sclerosis. The contra-indications to venesection in cardiac and arterial disease are few. Even when death appears imminent, the rapid abstraction of some ounces of blood not infrequently saves the patient. When marked ascites or pleural effusion co-exists with cyanosis and distressed breathing, the abdomen or the pleura should be tapped, and venesection delayed until it is apparent whether either of these procedures will or will not afford relief. Large hæmorrhagic infarctions of the lungs and extensive disease of the myocardium or of the coronary arteries, could such conditions be definitely ascertained, would probably be contra-indications, as even temporary relief could hardly be expected under such conditions.

Professor Fraentzel (*op. cit.*, p. 230) furnishes a long account of the treatment of the complications of cardiac failure. Hæmorrhagic infarction of the lungs and pleurisy he meets with dry or wet cupping. Pulmonary œdema calls for wet cupping or venesection. The latter method is indicated when the patient is relatively strong and the œdema rapidly developed, and it may be carried to 12 or 15 ounces. In cachectic cases, and with attacks of sudden angina or cardiac asthma, morphine hypodermically must be substituted. Cardiac dropsy is notoriously uncertain in its therapeutical relations. Calomel no doubt succeeds in some instances, but its after-effects may be bad: the appetite fails, and the patient goes rapidly down-hill. When all other measures have failed, the legs must be punctured. Professor Fraentzel describes how this operation is to be done, and shows how unfortunate and how uncalled-for is puncture of the scrotum in these cases, ending, as it so often does, in erysipelas and gangrene. [*See Year-Book for 1891, page 21.*]

#### IV.—DIET IN CHRONIC HEART DISEASE.

The desire expressed in this section of the *Year-Book* for 1891 that some recognised authority might give us his views of the proper dietetic treatment of heart disease has been gratified thus early by the appearance of Dr. Balfour's essay on the Senile Heart (*Edinburgh Medical Journal*, June, 1891).

##### **8. Diet in the senile heart.**

Cases of senile heart may be grouped for dietetic purposes under two distinct heads—first, those who are over their normal weight, who are breathless with occasional irregularity of the heart, and with or without marked signs of cardiac dilatation



and, secondly, those who are at or below their normal weight, and who suffer very considerably from cardiac disturbances of various characters, also with or without very evident signs of dilatation of the heart. Many senile affections of the heart owe their existence to over-indulgence, and all are undoubtedly aggravated by it. The first point of importance in regard to all cases where dieting and dietary come into question, is to divide the day properly, so that there may be a sufficient interval between meals. In health the stomach empties itself usually three or four hours after a meal, and requires a rest before more food is ingested. The rules which we should frame, therefore, for our cases of weak heart and feeble circulation are as follows:—First, there must be not less than five hours' interval after each meal. The next matter of importance is that the ingestion of solid food into a stomach still digesting a former meal arrests that process and provokes flatulence. Hence the second rule to be laid down is that no solid food of any kind is to be taken between meals. This rule must be absolute. There is nothing so destructive of gastric comfort as the continual pecking induced by gouty bulimia. This prohibition does not extend to water, which should be taken hot rather than cold; and of this hot water half a pint may be sipped, if desired, about two or three hours after a meal. Taken in this way it does not disturb digestion, it washes out the stomach, and passes speedily through the kidneys without raising the blood-pressure. The third important rule is that all invalids should have their most important meal in the middle of the day, and only a light meal in the evening.

For a patient with a weak, irregular heart the following would be a model dietary:—Breakfast at 8.30 a.m. Small slice of dry toast with butter, one soft-boiled egg, or a small quantity of fresh white fish, with a small cup of good coffee, or tea not infused longer than four minutes, with cream, milk or sugar, if required; cocoatina, or the infusion of cocoa nibs, may be substituted for the tea or coffee. Some patients prefer porridge and milk, but in that case they must give up the beverage mentioned. Dinner at 1.30 or 2 p.m. to consist of fish, meat, and pudding, any two being taken; *never any soups*. Individual idiosyncrasies must be inquired into and attended to, and soups, pastry, pickles, and cheese absolutely forbidden. After a time, any kind of fish and any kind of meat may be eaten in moderation, but at first the choice should be restricted to white fish boiled in milk, sweet-breads, chicken, game, rabbit, or tripe; any form of milk pudding with stewed fruit may be allowed; but soup, pastry, pickles, and cheese are absolutely prohibited. A single, thoroughly disintegrated

potato may be allowed, spinach, tomatoes, onions, leeks, or celery; peas and beans must only be used sparingly; all other vegetables are absolutely prohibited. A single cup of tea (or better still, hot water) may be allowed at four or five o'clock, but not a morsel of anything to eat then. Between 6.30 and 7.30 comes the final meal, consisting of a little white fish and potato, a bit of milk pudding, porridge and milk, or cold bread with hot milk poured over it. At bedtime a small tumblerful of hot water will soothe the stomach, promote sleep, and pave the way for a comfortable breakfast the next morning. Alcohol always tends to enfeeble a weak heart, and to lessen the power of a feeble digestion. There is no more potent cause of cardiac dilatation than the abuse of spirits; and there is no greater and more certain obstacle to the rehabilitation of such a heart than the excessive use of spirits. Worse, however, even than the abuse of alcohol is the abuse of narcotics. It is impossible to treat with any hope of success a dilated heart depending upon or associated with the abuse of opium in any form. Tobacco is a powerful narcotic not to be abused with impunity. The tobacco heart is a well-known and easily recognised form of cardiac irregularity, for which there are many palliatives, but only one cure—to give up tobacco. Cigarette smoking and inhaling the smoke into the lungs is the most deadly mode of using the drug, but there is no habit in which idiosyncrasy plays so great a part as in tobacco smoking.

#### **9. Diet in chronic valvular disease.**

In valvular disease of the heart with compensation, Professor Fraentzel says (*op. cit.*, p. 214) that the first two ends to secure as regards the diet is to avoid stimulants and excessive quantity of food. If the patient have been accustomed to eat largely he must be instructed to eat "little and often." A second principle to be observed is that the chief meals be taken early in the day. His "first breakfast" (before or after rising) should consist of about 17 ounces of milk, or rather less tea with or without milk—not coffee, which in Professor Fraentzel's experience does harm instead of good. If milk, alone or thus combined, cannot be taken, a liqueur-glassful of cognac may be added to each quantity of milk, and this plan will often overcome the patient's objection. A little plain bread or bread and butter may be eaten with the milk; also a couple of eggs or a small bit of meat if the patient have been accustomed to it, and provided its effect on digestion is faithfully watched. The "second breakfast" will consist of a small cup of good bouillon, a little bread, and a portion of roast meat, such as chicken, game, or even cutlets. A couple of eggs may be substituted, unless ordered at the early breakfast, or oysters if the



appetite fail. One or two glasses of light wine is the proper beverage, better than a smaller quantity of port or sherry; but champagne is to be entirely forbidden in heart disease, as well as liqueurs (*Schnaps*) and beer. The third meal, luncheon, should be ordered between one and three o'clock. The *menu* will include a small quantity (only) of strong soup, fish, meat, and pudding. Fish must be of the lean kinds, and plainly cooked. Digestible fruits are permissible; but not salads nor cheese. With this meal a stronger wine is the best, such as sherry or Madeira, but in small quantity—say a single glass, the patient's taste being respected in the matter of the particular kind of wine taken. There is no objection to a glass of still water; but beer is not to be permitted. The hour immediately following this mid-day meal may be quietly spent by the cardiac patient in his chair or in bed, and he may be permitted to sleep, but not for more than an hour, lest his night's rest be broken. The second hour should be devoted to light reading or social intercourse, and a cup of tea taken—but neither coffee nor cigar. Three or four hours after luncheon, the patient should take a short walk, if he can; to be followed by an hour or two devoted to reading, or a game of cards. Cardiac patients without urgent symptoms need not retire before nine o'clock (but the others ought not to sit up after seven o'clock), having eaten a slight meal of cold white meat and bread and butter, and drunk a glass of light wine. Much the same character of supper is suitable for the milder cases, before eight o'clock.

Dr. Solis Cohen (*The Therapeutic Gazette*, Feb. 16, 1891), discussing the general treatment of cardiac cases, deals first with the digestive system. We must nourish the heart itself, remembering that, as a consequence of impaired circulation, all the organs and tissues have suffered in two ways—from lack of proper material for anabolism, and from defective removal of the products of catabolism. The blood cannot get back to the lungs to be purified, as it is detained in the veins. The comparatively empty arteries, therefore, bring little new material for upbuilding; the over-filled veins retain the poisonous products of the breaking-down of tissue. Whilst, therefore, we diminish the quantity of food ingested, in order to reduce the work of the digestive organs, the nutritive value of the food and its force-producing value must be highly increased, and the waste to be dealt with diminished. These indications are fulfilled by such foods as milk, oils and fats, especially butter; a moderate amount of properly prepared meat, eggs, fish, rice, grapes, and certain fruits containing sugar; malt preparations, alcohol in moderation, and the green vegetables. We ought to interdict potatoes and other bulky foods, as also all

kinds of indigestible cooking. Predigested foods are of great service. As a rule, a glass of hot milk or milk-punch should be taken at bedtime.

## V.—NON-VALVULAR DISEASE OF THE HEART.

### 10. Treatment of the senile heart.

Dr. George W. Balfour (*Edinburgh Medical Journal*, June, 1891) has written a series of most valuable papers on the senile heart. Referring to the therapeutics of the senile heart, he says that this expression is synonymous with "gouty heart"; remembering, however, that all affections of the heart found in the old are not necessarily senile in origin, and that even when an existing affection of the heart is certainly senile in character in the sense of having come on primarily and insidiously after middle life, and possessing the ordinary characters of a heart strain from internal causes, the symptoms complained of do not always depend upon the heart affection, although they may seem to be distinctly cardiac in their nature. In many cases, great breathlessness accompanying a heart with distinct and free mitral regurgitation is not due to the heart affection, nor to be relieved by ordinary cardiac tonics. Anæmia from obscure sources, melæna from various causes, or even epistaxis may be responsible for the symptoms. In all such cases it is the condition of the blood that we must treat, simply watching the heart and treating it as occasion arises.

Simple irritability is the earliest indication of advancing senility in the heart: uneasiness or actual pain localised in the præcordial region, fits of palpitation on sudden exertion or emotion, tremor cordis coming on without warning—these are the symptoms of cardiac failure based on malnutrition. The pulse may be small, soft, and compressible, and the blood tension low.

The senile heart is a term which comprehends many symptoms and a variety of signs, but which is at bottom a cardiac failure based upon malnutrition, with whatsoever symptoms that malnutrition may be associated. To determine the cause of this failure is therefore of the utmost importance, as also to ascertain the source of the malnutrition upon which it depends. The most valuable, and most to be relied on in these cases, are the objective symptoms; but the subjective symptoms must also be duly weighed. All possible sources of loss of blood or of interference with blood-making organs should be removed when possible—loss of blood from the nose or from piles, persistent diarrhœa, or excessive venery. The amount and nature of the work done and the exercise usually taken must be adapted to the needs of the system.



With all muscles rest is often the best recuperative, and with a failing heart this is often markedly the case. Enforced rest can never be overdone so far as the heart is concerned, which must always go on beating, whilst it must affect favourably the general nutrition of the body, as well as the accumulation of energy within itself. Though exercise be an excellent preventive, and also a useful method of curing or assisting the cure of many of the evils of senility as affecting the heart, temperance is a thousand times more so.

The drugs useful in the senile heart in all its forms are but few in number, but they are of extreme value. All varieties of the senile heart are forms of failure with complications. The treatment must be tonic, and digitalis is the chief and most thoroughly reliable cardiac tonic. Where any drug can act at all, digitalis will never fail. It should be employed in doses of ten minims of the tincture in the twenty-four hours, or at most in the twelve hours. Nativelle's granules form an elegant and efficacious preparation; the dose should not exceed 1 granule in the twenty-four hours. The object of using digitalis in the senile heart is not to remove dropsy, to slow the pulse, nor to contract the heart, but by the gradual accumulation of trifling advantages to tone up, strengthen, and improve the nutrition of the cardiac muscle. Strophanthus cannot rank with digitalis, except that a solution of strophanthin can be made for hypodermic use. Strychnine is a most valuable remedy in the treatment of the senile heart, as is also arsenic; so in lesser degree are the proto-salts of iron. For relieving spasm and lowering blood-pressure the nitrites, especially nitroglycerine, have no equal. Iodide of potassium and colchicum are indicated where the gouty nature of the affection is very pronounced; whilst for acting on the bowels rhubarb and soda or the compound colocynth pill is to be preferred.

[The *dietetic* treatment recommended by Dr. Balfour for this class of cardiac disease—a matter of the first importance—is described under the heading of "Diet" on p. 15.]

#### **11. Simple dilatation.**

An editorial article in *The Therapeutic Gazette*, Feb. 16, 1891, analyses two lectures by Dr. Solis Cohen, on the therapeutic principles governing the selection of cardiac medicaments. Dealing first with simple cardiac dilatation without valvular lesion, he points out that we cannot restore the heart to its normal size. The indications, then, are to prolong life and promote comfort. We must place the patient's permanently damaged heart in such relations with his other organs, and the patient himself with his environment, that life may go on as long, and

with as little distress, as possible. There are two complementary indications: the first to reduce the work of the heart, the second to strengthen the heart, and to so regulate its action as to obtain the maximum of force with the least expenditure of energy. Mental and physical shocks must be carefully prevented; but the advice given as to occupation, rest, and exercise, must vary according to the degree of dilatation, the patient's social status, and his previous habits. If there be acute or severe symptoms of embarrassment of circulation or respiration, absolute rest for a time may be necessary. On the other hand, whenever no contra-indication exists, a certain amount of exercise—active, passive, or both—is necessary; the terminal circulation and internal respiration must be kept up, so that the products of waste shall be removed. It must, however, be gentle, intermittent, and never fatiguing. The best form is walking. Massage (friction and stroking) should be employed as an adjuvant when walking is possible, and as a substitute when the latter is impossible. It should not be practised for more than fifteen or twenty minutes at a time, and must be gently and skilfully done; the lower extremities especially should be manipulated. All patients should spend a certain amount of time in the open air. When this cannot be obtained, inhalations of oxygen or of compressed air may be administered. Compressed air also equalises the circulation by its mechanical pressure effects. "Second digestion"—respiration—must be properly performed. Solution of hydrogen dioxide in water or in ether may be given to supplement respiration by utilising the stomach for the direct introduction of oxygen into the blood. Doses of from one to four drachms may be given of the so-called "fifteen-volume" aqueous solution properly diluted. The ozonic ether may be given in doses of one fluid drachm with an equal quantity of glycerin in enough water to make a tablespoonful. The heart shows a tendency to be slowed and strengthened by these agents. Diuretics and diaphoretics, along with agents acting upon the liver and the intestines, must be had recourse to, continuously or discontinuously as indicated. By cholagogue and purgative medication we fulfil three indications: First, we relieve the portal circulation, already sufficiently embarrassed; secondly, we remove from the circulation a large amount of fluid, thus diminishing the volume of blood to meet the impaired propulsive power of the heart; thirdly, we remove waste products. Among the most useful agents are sodium phosphate, euonymin, rhubarb, Epsom salt, Rochelle salt, various mineral waters, calomel and jalap. Calomel and Rochelle salt have the additional usefulness of a



certain amount of diuretic power. The diuretic properties of calomel are most available, especially in cardiac impairment.

Hæmatinic remedies are also to be administered. Iron stands first in this class; next to it is arsenic. Cod-liver oil is a hydro-carbonaceous food and blood-former of great utility. It may be combined with the hypophosphites. Having thus placed our patient in harmony with his environment; having lowered his digestive power to the capacity of his circulation, and improved both the digestive product and the blood itself, in accordance with the needs of the impoverished tissues; having done what we could to improve respiration, so far as it can be improved independently of circulation; and having duly attended to the excretions, we can now devote all our attention to the organ which is itself at fault.

In a case of simple dilatation without valvular lesion, the indication is to empty the veins and fill the arteries, and for this purpose we have digitalis at our command. The powder of the leaves made into pill, and given in the dose of  $\frac{1}{4}$  to 1 grain or more three times daily, is the best preparation of the drug to employ. The infusion is sometimes to be preferred in doses of half an ounce night and morning, when a diuretic effect is specially desired. Should the digitalis heighten blood pressure too pronouncedly, we can combine it with nitroglycerine. The risk of a cumulative effect of the drug we can obviate by its routine intermission at suitable intervals. During these periods of intermission we can substitute strophanthus. Of other useful agents may be mentioned convallaria, adonis vernalis, and sparteine. Better, however, than any single agent is the combination of caffeine or cocaine with strychnine. Strychnine is a catabolic agent, but the catabolism which it produces is an effective catabolism, giving the highest force-product with the least degree of waste. The chief action of caffeine is upon the heart-muscle. It increases very greatly the vigour of the systolic contractions, and diminishes their frequency. In order to get the full effect of caffeine, it must be used in fairly large doses—5 grains three times daily; and with this may be combined  $\frac{1}{60}$  to  $\frac{1}{30}$  of a grain of strychnine. When a more rapid effect is desired than caffeine usually gives, cocaine in doses of from  $\frac{1}{8}$  to  $\frac{1}{2}$  a grain may be had recourse to, or we may give it hypodermically in doses not exceeding  $\frac{1}{4}$  of a grain. If the caffeine alone, or its combination with strychnine, should prove not to be sufficiently stimulating—i.e., where, despite the increased vigour of the cardiac contraction, it seems not to be sufficiently free—a minute dose of cocaine ( $\frac{1}{16}$  grain) may be combined with the other agents for continuous use

for a week or two at a time. Our patient ought also to drink a cup of strong coffee at each meal and before going to bed.

Dr. Solis Cohen esteems *strophanthus* more highly than any other drug yet brought forward to replace or supersede *digitalis*. He has found the following expedient preferable to either the uninterrupted continuance of either drug (*digitalis* or *strophanthus*) or an abrupt change from the one to the other. He orders a patient—in whom, for example, cardiac weakness is part of a general muscular and nervous degeneration—tincture of *digitalis* and tincture of *strophanthus* alternately and coincidently in the following manner. The patient having taken thrice daily for seven days ten drops of *digitalis* tincture, he begins to diminish the dose, substituting in each dose the first day one drop of the tincture of *strophanthus* for one drop of the tincture of *digitalis*. The second day two drops, the third day three drops are substituted; and thus during two days the *digitalis* is diminished and the *strophanthus* increased *pari passu*, until finally the patient is taking ten drops of *strophanthus* and no *digitalis*. The *strophanthus* having been taken alone for seven days, he begins to substitute the *digitalis* for it, a drop at a time, reversing the previous process. *Strophanthin* may be given in doses of from  $\frac{1}{100}$  to  $\frac{1}{50}$  of a grain hypodermically, repeated at intervals of many days, the effect being said to be prolonged.

*Convallaria* (and its glucoside *convallamarin*) is useful in some cases as a substitute for *digitalis*, but it frequently disappoints us. Its diuretic properties are more constant than its power over the heart. As far as Dr. Solis Cohen's experience has gone, with regard to *adonis vernalis* (and *adonidin*) it is satisfactory. It may be employed as an adjuvant to *digitalis*, or as a temporary substitute for it. *Adonidin* may be given in doses of  $\frac{1}{2}$  to  $\frac{1}{4}$  grain.

*Sparteine*, although possessing considerable diuretic power, is in his opinion inferior to the infusion of broom. Dr. Solis Cohen has had a few satisfactory results from the administration of barium chloride, especially in the treatment of the overacting heart and the relaxed vessels of exophthalmic goitre.

## VI.—CARDIAC STRAIN AND ITS TREATMENT.

### 12. Treatment of strain.

Dr. Solis Cohen (*The Therapeutic Gazette*, Feb. 16, 1891) says that in a case of eccentric hypertrophy, due, say, to excessive muscular exertion, the condition of the cardiac muscle cannot materially be altered. We must at once interdict the over-exertion which has brought about the morbid condition. Sensible



exercise, but not too prolonged, may be permitted; alcohol, tobacco, immoderate eating, and mental excitement must be avoided. The diet should contain laxative elements to prevent straining at stool. We must limit the quantity of fluid ingested. A hydragogue cathartic may be used in the presence of symptoms of cerebral hyperemia, and in urgent cases we can blister the nape of the neck or resort to venesection. But the necessity for the latter measure will, as a rule, be avoided by rest and doses of 1 to 5 minims of tincture of aconite three times daily. As adjuvants to, or in place of, the aconite, we may give 2 to 5 drops of diluted hydrocyanic acid, 10 to 30 minims of diluted hydrobromic acid, 10 to 30 grains of bromide of potassium, or 5 to 10 grains of iodide of potassium or iodide of sodium. *Belladonna* is recommended, yet, owing to its action in increasing both the rapidity and the vigour of the heart's action, it seems to be contra-indicated.

## VII.—FUNCTIONAL DISEASES OF THE HEART.

### 13. Tachycardia.

The subject of tachycardia engaged the attention of *Dr. Fraentzel* (*Münch. med. Wochen.*, Feb. 3, 1891, and *The Medical News*, p. 363, March 28, 1891) at a meeting of the Society of Internal Medicine of Berlin. The habitual acceleration of the pulse, which is present in the most diverse diseases of the heart, and which persists without recognisable change for years, should not be called tachycardia. This name should be reserved for the paroxysmal acceleration of the pulse—the essential paroxysmal tachycardia of the French—in which the disease occurs suddenly, and the pulse increases to 180 or 200 beats per minute. The symptoms of tachycardia may be explained in two ways, as the result of palsy of the vagus, or from irritation of the accelerator fibres of the sympathetic. The latter cause is more easily understood, the symptom occurring as a spasm, or neuralgia, or colic occurs. Although from the very beginning the tendency has been to attribute tachycardia rather to a palsy of the vagus than to a stimulation of the sympathetic, yet there are individual symptoms inexplicable by that hypothesis; for example, the attack ceases if a blow is struck upon the thorax, and the paroxysm begins with pallor and dilatation of the pupils, and subsides with such symptoms as sweating, flushing, and contraction of the pupils. Excitement of the sympathetic is often cured by a dose of morphine, while in palsy of the vagus *digitalis* acts very well, or the attack may be cut short by compression of this nerve.

Recovery, however, does not always occur so quickly: frequently the disease lasts for years, and then ceases suddenly. The lack of a clear understanding of the cause makes the treatment uncertain. One should not, however, following Nothnagel, discard all treatment, on the ground that the attacks are not serious and that the disease will subside of itself. Fraentzel, for example, has seen several grave cases, in one of which there was extensive stasis in the lungs and veins, with cyanosis, orthopnoea, catarrh of the lungs, and swelling of the liver. Morphine was of no use in this case, but digitalis overcame the condition. The severity of the symptoms at that time convinced Fraentzel that the disease might result fatally, and since then he has discovered two fatal cases in the literature of the subject, and has subsequently seen one himself. His own case was that of a workman, 35 years old, who complained of dyspnoea, which occurred suddenly; he had formerly had cardiac palpitation. The heart was not enlarged, and its sounds were normal. On the day after admission his pulse was 180, and the respirations 40. Digitalis caused the symptoms to disappear within twenty-four hours, and was just as prompt in several other attacks. Finally, however, this drug failed in a fresh attack, and the heart became visibly enlarged, the pulse was 172, and cyanosis appeared, followed by death. At the necropsy both ventricles were found dilated, and the papillary muscles flattened; there was also fibrous thickening of the endocardium, but the valves were intact.

M. Huchard (*The Medical News*, p. 267, vol. lvii., No. 11, 1890) recommended, in a clinical lecture delivered at the Hôpital Bichat, the following treatment for paroxysmal tachycardia. During the paroxysm the patient must lie down on the right side in a horizontal position, and every measure be taken to relieve him of mental or physical disturbance. Compression may be applied over the right carotid artery; in some instances a deep inspiration may give relief. These measures are useful in some cases; whilst in others M. Huchard employs bichloride of methyl spray to the præcordia, the back of the neck, or the chest. At the onset of the attack he gives digitalis—by the mouth if possible, or, if the stomach be irritable, by rectal injection. When cardiac weakness is very marked, and syncope a pressing symptom, hypodermic injections of ether or caffeine may be used, and nitroglycerine given or nitrite of amyl inhaled; but in cases where low arterial tension already exists, these latter remedies are absolutely contra-indicated. If the attack be a prolonged one and threatens life, and if cardiac dilatation be imminent, recourse may be had to venesection; or, if the patient be plethoric, local blood-letting



from the præcordia may be carried out. Between the attacks the patient must be carefully dieted. The use of coffee, tea, alcohol, and tobacco must be interdicted. All stimulating foods must be forbidden. We must in each case seek for the cause and try to overcome it. M. Huchard uses arsenic as a general systemic tonic. In instances where the arterial tension is below normal he recommends the following pills:—Sulphate of quinine, 3j; aqueous extract of ergot, 3j; extract of nux vomica, 1½ grains: make into forty pills; two or three pills to be taken two or three times daily for six weeks or two months. At the same time Fowler's solution is also taken. If cardiac weakness be present, digitalis may be given in constant but small doses for a long period.

#### **14. Electricity in tachycardia.**

Mr. Cardew (*The Lancet*, July 4 and 11, 1891) has employed electricity in the treatment of tachycardia, according to the method described under Graves's Disease (p. 35). Of eight cases of tachycardia five recovered under his treatment. One, a male who masturbated, improved on cessation of this habit, but relapsed on recurring to it. Two patients were women in whom tachycardia was associated with a low, morbid, hysterical condition.

#### **15. Palpitation.**

Dr. Gingeot (*Rev. Gén. de Clin. et de Therap.*, and *The Medical Record*, p. 204, Feb. 14, 1891) advises the use of cold applications, especially for the relief of the nervous form of palpitation. The simplest plan of employing cold is to apply a wet sponge over the heart in the morning before dressing. At night, when in bed, the patient or an assistant may put a cold compress over the heart, well covered with dry bandages, to retain moisture and prevent any wetting of the clothing. When this compress is warm, the patient may remove it, and will probably fall asleep. There are objections to the ice-bag, one being the condensation of insensible perspiration upon the surface of the skin. The ether spray is a simple and convenient method of refrigeration. With proper instruction as to necessary precautions in the use of ether, the patient can apply cold in this way at any hour of the day or night. Palpitation of purely nervous origin seldom fails to be greatly benefited by the application of cold; and a certain degree of success often follows its use in cases of palpitation due to organic disease.

#### **16. Atropine in cardiac disorder.**

Dr. Cardarelli (*La France Médicale*, Jan. 23, 1891, and *The Therapeutic Gazette*, March 16, 1891) bases the following conclusions regarding the action of atropine in diseases of the heart

on a careful study of sixty-five cases of various forms of functional cardiac disorder. Given hypodermically in doses of  $\frac{1}{150}$  to  $\frac{1}{32}$  grain, atropine first manifests its action on the heart. This consists in overcoming to a greater or less degree the inhibitory influence of the vagus nerve. There is a constant acceleration of the cardiac rhythm consequent on this paralysing action on the vagus. Arterial pressure is reduced under the influence of atropine in direct proportion to the acceleration of the rhythm. In the writer's opinion it will be a great error not to prescribe atropine in cases where a permanently slow pulse is accompanied by epileptiform vertigo, and, above all, by syncope.

#### 17. Toxic cardiac disturbance.

Dr. John Anlde (*The Therapeutic Gazette*, vol. xv., p. 313, 1891) tells us that cardiac irregularity and exhaustion due to morphine or chloral-hydrate are promptly met by *cactus grandiflorus*. The intermittent heart due to the abuse of tea is greatly benefited by the alternation of gelsemium with cactus.

#### 18. The tobacco heart.

According to Dr. Solis Cohen (*The Therapeutic Gazette*, Feb. 16, 1891), belladonna is of considerable service in the irregular, irritable, and feebly overacting heart of some cases of tobacco poisoning. The combinations of belladonna (preferably in these cases to its alkaloid atropine) with strychnine, digitalis, or caffeine have proved useful in such cases. Diluted hydrocyanic acid, cimicifuga, musk, the bromides, small doses of sodium iodide, and especially monobromated camphor, act beneficially in this disorder.

### VIII.—ANGINA PECTORIS.

#### 19. Discussion on angina pectoris.

Dr. Douglas Powell (*The Practitioner*, April, 1891) read an interesting paper before the Medical Society of London introductory to a discussion on the nature and treatment of Angina Pectoris. He pointed out that it is all important as an element of prognosis, as also in regard to treatment, to make out as precisely as possible the condition of the heart. As to treatment, nitrite of amyl and nitroglycerine are of great value in the majority of cases; but far more so in the graver cardiac cases than in the purer vaso-motory. In the vaso-motory group they require to be combined with nervine tonics or sedatives—iron or zinc with valerian, bromides, and often with measures of a depletory kind; stimulants are best omitted, and exercise encouraged. In the cardiac group carminative stimulants are of special value, and we may combine nitroglycerine with them. Digitalis guarded by



nitroglycerine is often of great value; and of all tonics, arsenic is, as a rule, the best. We must only permit the gentlest exercise, never straining or forcing the pace; and we must as far as possible remove all the causes of nervous or vascular excitement. In one case, Dr. Morton, of Croydon, gave large doses of nitroglycerine—during severe attacks giving 25 and 30 minim doses of a 1 per cent. solution, and repeating the dose in an hour—with excellent results. Such large doses, of course, call for great caution. Regarding the treatment of *syncopal angina*, the *angina sine dolore* of Gairdner, Dr. Powell recommends careful feeding without long intervals, and in small meals, two hours' reclining daily before meal-times, with an occasional twenty-four hours in bed, the gentlest level exercise, peptic tonics, and during attacks hot drinks and carminative stimulants.

In the course of the discussion on Dr. Powell's paper:—Dr. Ord insisted on the importance of dyspepsia as a factor in bringing about the attacks, and observed that if he were restricted to one remedy in the treatment of angina pectoris he would prefer sulphate of magnesium to nitroglycerine. He mentioned the frequent coincidence of glycosuria with angina pectoris, from which he drew the inference that the visceral blood-vessels were dilated, not contracted along with the superficial vessels. We should also not forget the connection of gout with angina pectoris, and treatment directed to the gout often relieved the angina. He insisted on the fact that no sensations of anginous type were to be treated lightly, or the patient left without a proper explanation of the danger, with the precautions which became necessary.

Dr. Broadbent remarked on the fact that angina pectoris was seldom or never associated with mitral lesions, and anginal symptoms usually subsided on the supervention of a mitral lesion in a patient subject to anginal attacks. As the vast majority of anginal cases did not occur in the neurotic sex, too much importance should not be attached to the neurotic theory. The central fact in attacks of angina pectoris was that the heart was beaten, either by peripheral resistance or on account of failure of its own powers.

Sir Walter Foster said that if the pain were prolonged it was an indication for morphine subcutaneously, whilst in the intervals no drug was more valuable than arsenic, alone or with ether, iron, or bromides. Doses of 5, 10, or 15 grains of iodide of potassium three times a day had a wonderful power of lessening the pain, and improving the patient's condition.

Professor Grainger Stewart grouped cases of angina pectoris into four categories:—(1) Simple neuralgia of the heart, seen in women

at the climacteric and in gouty men; very amenable to treatment. (2) A condition dependent on and associated with acute or sub-acute inflammation of the aorta. (3) A common group of cases in which angina pectoris is associated with fatty, fibrous, or other degeneration of the cardiac walls, or with changes in the coronary arteries. (4) Angina pectoris associated with spasm of the arteries and increased tension. He looked on anginal pain as a pain of nervous rather than of muscular origin, comparable to epileptiform neuralgia. In angina, explosions of pain occurred from time to time in connection with irritation in the aorta or heart, the cardiac nerves being capable of afferent as well as efferent function. He suggested as the essence of the process, a change of organic or functional nature in the nerves or nerve-endings which controlled the heart, and he added that distension of the heart did not of necessity produce pain.

The general health of the patient should be improved, all excitement and effort avoided, and spasm relieved by nitrite of amyl. Nitrite of amyl also had a direct effect on nervous structures, for other neuralgiæ were relieved by it. Iodide of potassium and arsenic were invaluable, and direct cardiac tonics, as digitalis and strophanthus, might occasionally be given with benefit.

Dr. Lauder Brunton agreed as to the necessity for the elimination of waste products, and also for restricted diet in gout, and for the use of iron and arsenic in feeble heart; but he regarded the nitrites as the most efficient remedy during a paroxysm, and, on the whole, iodide of potassium as the most useful in the interval.

Dr. Mitchell Bruce considered that an attack of angina was determined, not so much by the vaso-motor condition, as by the relation of the pulse tension to the state of the heart behind it. It was really a matter of relation between the pressure ahead and the driving power, and in the great majority of instances it was the fault of the heart and not of the periphery. The effect of treatment bore out the importance of keeping the cardiac element well in view. Under certain circumstances, iodide of potassium was more valuable than nitroglycerine; and between the attacks regular, gentle muscular exercise was good, the patient attending strictly to his diet. He agreed with Dr. Ord as to the value of purges; and if in the treatment of this affection he were limited to one drug, he would select blue pill, which acted wonderfully in irregular gout with angina.

Dr. Seymour Taylor agreed that angina pectoris was rare in association with mitral disease, and common in connection with aortic lesion. As to treatment, he considered rest the most



important thing. Nitrite of amyl should be used with great care, and not indiscriminately, and bleeding and calomel purges were often followed by great relief. The patient should be treated with regard to diet as if he were being trained for an athletic performance.

#### **20. Prognosis and treatment of angina pectoris.**

Dr. Broadbent (*Brit. Med. Journal*, 1891, p. 747) points out in his "Lumleian Lectures" how beset with uncertainty is the prognosis of angina pectoris:—We can never tell when the next attack will come on, or whether it may not be the last. Our elements of guidance, however, will be an estimate of the relative predominance of the two chief factors—obstruction in the circulation, or inherent weakness of the heart-wall. While the attacks only come on when provoked by exertion or excitement, or by flatulent indigestion, they may be postponed indefinitely by care in avoiding all known occasions. The patient must not take exercise immediately after food, nor hurry or walk against a wind; even on level ground he must adapt his pace to his condition, and if compelled to go uphill, must do so very gently and circumspectly. If, further, there is habitual high tension in the pulse, this is evidence of obstruction in the circulation capable of mitigation, and of some degree of vigour in the heart. So also will be accentuation of the aortic second sound, and still more any recognisable impulse. Angina in connection with aortic valvular disease may run a very protracted course. When the pulse is soft and the heart is normal in dimensions, with imperceptible impulse and weak sounds—when, in fact, the results of careful examination are negative—the greatest uncertainty and danger exist. The occurrence of unprovoked attacks and of nocturnal angina will emphasise this conclusion. The hygiene and general treatment for angina pectoris should correspond with that for dilatation and degeneration, which, indeed, mostly underlie the angina. Life should be made as easy as possible. The patient should have as much sun and fresh air as his strength and the weather will permit, but on no account must he be exposed to severe cold. Such exercise as he is capable of is good for him, but he should never incur angina or extreme breathlessness. His food should be simple, his meals strictly regular, the bowels kept well open. Arsenic appears to be preventive of the paroxysms; phosphorus, possibly, has a similar or superior influence. The great means of cutting short the attacks is nitrite of amyl, or nitroglycerine. A patient subject to angina should never be without one or other of these remedies. They are, no doubt, greatly abused. Many persons, feeling secure of obtaining relief, neglect the important precautions by which the real

disease, of which angina is only a symptom, may be held in check; and so, if they escape suffering, they hasten on a fatal termination.

### 21. Cardiac pain and angina.

Dr. Lauder Brunton (*The Practitioner*, Oct., 1891), in a communication on cardiac pain and angina pectoris, says that a form of elimination not much in vogue, but which is sometimes exceedingly useful, is bleeding. The natural indication for relieving the pain at the time is certainly to lower the blood-pressure, and this is most rapidly and efficiently done by the administration either of a nitrite, or of some other substance which acts in the same way as a nitrite. Most commonly used is the nitrite of amyl; but, according to the researches of Professors Cash and Dunstan, more powerfully acting and energetic nitrites are secondary propyl, tertiary butyl, and isobutyl. The latter substance has already been used with good effect. Both nitroglycerine and nitrite of sodium have the advantage over nitrite of amyl, that they can be more readily used to keep up a steady diminution in the blood-pressure; and the plan of giving small doses of nitroglycerine at frequent intervals during the day is sometimes most advantageous. The best way of doing this is to break up a chocolate tabloid into many small pieces, which are put into a *bonbonnière*, and one of them taken every ten minutes or a quarter of an hour. In this way the action is never very great, but is kept up with a considerable amount of constancy during the whole day. But while we may try to avoid sudden increase of tension from exercise or from emotion, and to diminish the excessive tension in cases of gouty kidney by free elimination and by an almost entirely vegetable diet—while we may lessen the tension during the attack by nitrites and allied remedies, we must think at the same time of the enlargement of the heart, and try to increase its force as best we can. First and foremost, perhaps, amongst the drugs that are really efficient in tending to prevent the recurrence of the attacks in angina pectoris comes iodide of potassium, in doses of 5 to 30 grains three times daily. Whether this acts as a simple eliminant, or whether it tends to increase the blood supply to the heart by causing absorption of the deposits which block the coronary arteries, we cannot at present tell; but about its practical use there can be no doubt whatever. In cases of fatty degeneration, we may combine elimination with the administration of iron and arsenic. Smoking must be entirely forbidden to patients suffering from angina pectoris. Tobacco has a most extraordinary power to contract the blood-vessels, and there is perhaps no other drug that in a somewhat



larger dose can raise the blood-pressure so rapidly and so much as nicotine.

Dr. Solomon Solis Cohen (*Philadelphia Hospital Reports*, vol. i., 1890) describes the treatment adopted in a case of angina pectoris, the result of arterio-sclerosis. The treatment instituted consisted of rest in bed, regulation of diet, due attention to the secretions and excretions, amyl nitrite during the attack, and one drop of the centesimal solution of nitroglycerine three times a day, increased one drop at a dose, until physiological effects were obtained. After the dose had been raised to 5 minims three times a day, the patient remained for four days free from an attack. The paroxysms then recurred, and seeming to be uninfluenced by further increase of the drug *per os*, it was administered hypodermically in doses of 10 minims of the centesimal solution once, then twice, and finally three times daily. The attacks were partially controlled, so that a period of two weeks of comparative freedom was obtained before their recurrence, which ensued upon the diminution of the number of injections to two in twenty-four hours. Sodium nitrite was then given, beginning with one-fourth of a grain and increasing the amount one-fourth of a grain at each dose, until finally a dose of 5 grains three times a day was reached. Under 15 grains of sodium nitrite by the mouth, and 40 minims of the centesimal solution of nitroglycerine hypodermically, in the twenty-four hours, the periods of quietude increased.

Dr. Henri Huchard (*Rev. Gén. de Clin. et de Therap.*, and *The London Med. Recorder*, p. 62, Feb. 20, 1891), in discussing the treatment of angina pectoris, says that our efforts in its treatment should be made in two directions. We must first deal with the attack itself, and then with the interval between the paroxysms.

(I.) *Treatment of the Attack*.—(a) Relieve the pain, preferably by morphine; if this is not tolerated, use cocaine. (b) Arrest the attack, and produce vaso-motor dilatation, either by inhalations of amyl nitrite or hypodermic injections of trinitrine, preferably with the former, owing to its more rapid action.

(II.) *Treatment of the Interval*.—(1) *Symptomatic*. The arterial tension may be kept down by daily small doses of nitroglycerine (m iij. of 1 per cent. solution thrice daily on sugar), or a course of nitrite of sodium may be instituted. Another valuable drug is potassium iodide, taken over a long period.—(2) *Causal*. (a) If the attacks are of neuralgic origin, employ nervous sedatives, such as chloral, bromides, hydrotherapy in the form of the various saline or medicated baths, etc. (b) If of rheumatic origin, the best medicine is salicylate of sodium. (c) If there be well-marked arterio-sclerosis, advise externally the use of points of cauterization.

over the sternum, or blisters, and internally the use of the alkaline iodides.—(3) *Hygienic*. (a) Prevent moral shocks, over-exertion, constipation. (b) Avoid tobacco. (c) Advise a restricted diet, consisting largely of milk or vegetable foods. (d) Combat such conditions as alcoholism, saturnism, arthritis.

Dr. W. R. Jackson (*The Journal of Amer. Med. Assoc.*, p. 641, May 2, 1891) suggests the following indications for the treatment of angina pectoris. (1) To relieve pain—by hypodermic injections of morphine or inhalation of ether or chloroform; (2) to stimulate the heart to action—by use of brandy, whisky, or sulphuric ether given hypodermically or by the mouth; (3) to maintain the continued rhythmical action of the heart, and to diminish the arterial tension—best done by nitroglycerine, nitrite of amyl, or electricity. The cases most amenable to treatment are the purely cardiac kind, without cardiac lesions. It is well to put our patient on a tonic of iron and arsenic, or quinine with some aromatic. If there is a gouty or rheumatic diathesis, it should be met by appropriate treatment, and a suspicion of syphilis should likewise be suggestive. Sea-baths and travel are to be recommended. The patient should avoid all excitement, moral and physical; he should lead a quiet, cheerful life, and should religiously abstain from tea, alcohol, and tobacco.

## IX.—GRAVES'S DISEASE.

### 22. Treatment in general.

Professor Jaccoud (*Lyon Médical*, Dec. 21, 1890) states that the treatment for exophthalmic goitre should be regulated by its ætiology. In one, and perhaps the most important, class of cases there is marked anæmia. Here preparations of iron are very useful, otherwise they only aggravate the symptoms. In the early stages disorders of menstruation must be treated; at a later period they are rather the result than the cause of the disease. The treatment *par excellence* consists of hydrotherapy and electricity. As regards hydrotherapy, treatment should commence with tepid or even warm douches; a cold douche given at the commencement often so aggravates the cardiac trouble that the patient will refuse to continue the course. These douches, which should at first last only about twenty-five or thirty seconds, must be given daily. Their temperature may after a time be gradually reduced; eventually quite cold water will be borne. The best form of electricity to employ is bilateral galvanism of the neck by continuous ascending currents. The applications should be daily, and the strength of current weak—not more than from eight to



ten cells are necessary. The medicinal treatment which has seemed most efficacious in the writer's hands consists in the prescription of arsenic and bromide of potassium, with a milk-diet. The arsenic is to be given with meals, in doses commencing with  $\frac{1}{32}$  grain, twice daily, increased gradually, and with intermissions, up to  $\frac{1}{8}$  grain—rarely more. The potassium bromide is given in daily doses of 30 grains, gradually increased to 60 grains, between meals. Milk-diet need only be partially adopted in slight cases, but in severe forms this is one of the most powerful aids to treatment. Such a course should be patiently continued for weeks, or even months. Relief is nearly always obtained, but complete and definite cures are very rare. M. Jaccoud has found quinine treatment painful and of little benefit. With regard to potassium iodide or iodine, which one might be tempted to give on account of the goitre, it is to be borne in mind that no remedies are more hurtful or more badly tolerated. Another treatment sometimes very useful, but in other cases most harmful, and of which the results cannot be foreseen, is the application of ice to the præcordia and the neck. This should never be adopted unless the patient can be very carefully watched, there being always a danger both of aggravating the circulatory troubles and of causing inflammation and sloughing of the distended skin covering the thyroid gland. Although brilliant results have been obtained by this method, it is only applicable in very special cases.

Dr. Hingston Fox (*The Medical Press and Circular*, April 22, 1891), speaking of the treatment of Graves's disease, lays stress on the following measures: (1) Moral and hygienic care in its widest sense; (2) improvement of nutrition: much milk, cod-liver oil, iron; (3) of drugs, belladonna in mild and early cases, iodides in later stages, pushed fearlessly to large doses, bromides in some cases; (4) locally, the weak, continuous current, following Dr. Sansom in persevering long with its use; it should be applied to the thyroid with a large plate. Leiter's cold coil also gives some promise. (5) For tracheal obstruction: tracheotomy, incision of the capsule of the tumour, or compression laterally in some cases, inhalation of chloroform, or lastly division of the isthmus offers the best hope of relief.

### 23. Surgical treatment.

Dr. Lencke, of Hamburg (*The Medical Record*, p. 174, Feb. 7, 1891), records two cases of Graves's disease in which surgical treatment of goitre produced "great relief" of symptoms. The first patient was a boy of seventeen, who had the classical symptoms of the disease. He came under treatment on account of a sudden access of the swelling, which produced great distress

with extreme cyanosis by the pressure it exerted. As the patient was in imminent danger, tracheotomy was performed; and seven days later one-half of the tumour was extirpated. Recovery was uninterrupted, the symptoms rapidly vanished, the exophthalmos disappearing, and the heart becoming quiet and regular in action. The second case occurred in an older patient, and was attended with similar results.

#### 24. Heredity.

Dr. Julius Rosenberg, of New York (*Medical Record*, p. 605, vol. xxxviii., No. 22, 1890) publishes a case of Graves's disease of interest inasmuch as in the literature of the disease heredity is hardly mentioned as a factor in its ætiology. The patient was a married woman of 38. Her father and his mother, and also his two sisters, had been afflicted with what she called "prominent eyes and swollen necks," and died of heart disease. She had one brother and one sister, and the sister suffered from the same disease. Her eyes had been prominent since she was eight years of age. She had been pregnant eleven times. Only the third child was living; the rest were either still-born or died soon after birth. The usual symptoms of the disease, subjective and objective, were very well marked.

#### 25. Electrical treatment.

Attention has been called to this subject by Mr. H. W. Denton Cardew (*Lancet*, July 4 and 11, 1891), and in a paper read before the Therapeutical Section of the British Medical Association at Bournemouth. Mr. Cardew's method is to use a very weak continuous galvanic current of about 2 to 3 milliamperes, for a period of six minutes, three times a day, or even more often when the palpitation is a troublesome symptom. The positive electrode is placed on the nape of the neck so that the centre of its lower border corresponds to the seventh cervical spinous process, and is held in that position during the application. The negative electrode is moved up and down the anterior border of the sternomastoid, being applied to the right and left sides of the neck respectively on alternate occasions. The apparatus consists of the following parts: (1) A circular disc of ductile metal, 3 inches in diameter, as the positive electrode. (2) A circular disc of ductile metal,  $1\frac{1}{2}$  inches in diameter, as the negative electrode. The electrodes are covered with wash-leather thoroughly saturated with hot water before each application. If salt or vinegar be added, the skin will eventually chap, and the effect would further be to complicate the question of the conductivity of the portion of the body included between the electrodes. (3) The battery, which should have an electro-motive force of about 6 volts. It is



immaterial what variety of cell is used, though dry ones are the most convenient. The cells should be connected in series and placed in a box, their end terminals being connected to two terminal screws, marked respectively + and —. (4) A water voltameter enables the patient to ascertain if his battery is in proper working condition. With such apparatus, and with such a method, Mr. Cardew claims that any patient can self-apply the treatment; a point to which he particularly calls attention as absolutely essential in any electrical treatment of Graves's disease.

The immediate effect of such an application, as demonstrated by sphygmographic evidence, is a diminution of the rate, violence, and suddenness of the ventricular systole (see Fig. 1). The dimi-

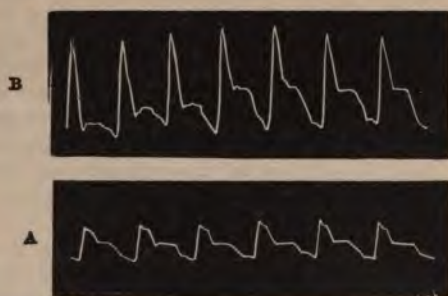
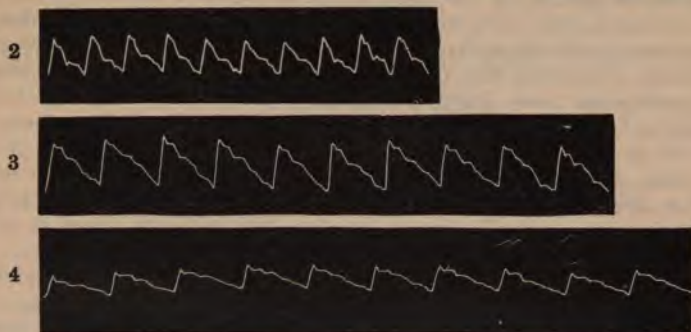


Fig. 1.—To illustrate the effect of electrical treatment on the rate and force of the pulse in Graves's disease B taken immediately before treatment; A immediately after treatment.

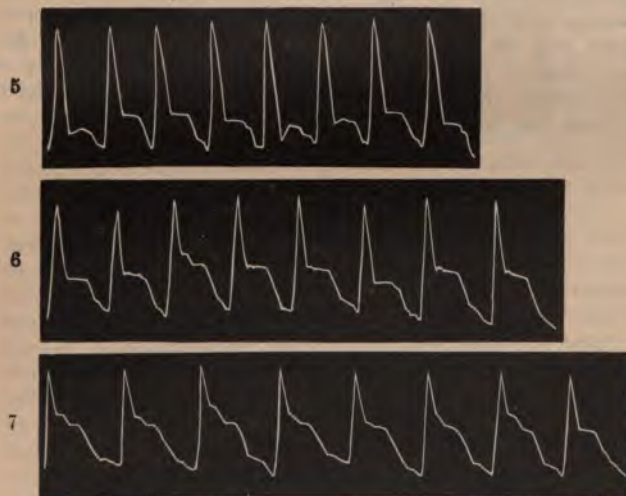
nution of the rate is sometimes the most noticeable; in other cases, diminution of the violence and suddenness is the most marked. In cases where extreme exophthalmos is present, the feeling of tension accompanying this is usually relieved. These immediate effects last for a short time only at first, increasing in duration as the patient improves. Hence frequent applications *per diem* are advisable. As a rule, the symptoms disappear in the following order:—The general health at first improves, and the minor nervous troubles disappear, such as restlessness, irritability, insomnia, and tremors (if only slight). When the menstrual disturbance is but slight, improvement occurs at an early stage; but if complete amenorrhœa be present, this persists for a longer time. Of the so-called "cardinal" symptoms, the cardio-vascular are, as a rule, the first to yield, except in cases where the tremors are but slight; when severe, the tremors disappear at a late stage. The exophthalmos and thyroid enlargement are the last to yield. Von Graefe's and



Stellwag's symptoms disappear without either definite order or relation to the exophthalmos. The occasional glycosuria and



Figs. 2, 3, and 4.—To illustrate improvement in a case of Graves's disease under electrical treatment. The first tracing was taken at the commencement of treatment; the second after three months' treatment; the third after seven months' treatment.



Figs. 5, 6, and 7.—To illustrate improvement in another case of Graves's disease under electrical treatment. The first tracing was taken at the commencement of treatment; the second after three months' treatment; the third after six months' treatment.

polyuria disappear during the early stages of treatment. The excessive sweating, though somewhat improving, as a rule remained

with the skin discoloration for a little time after cessation of the other symptoms. The duration of treatment must vary with the severity of the case, but in no instance should it be discontinued until a few weeks after complete recovery. Mr. Cardew warns us not to under- or over-estimate the value of the treatment. He states that relapses are apt to occur at first, which the practitioner must learn to expect, that he may encourage his patient to persevere. He also points out that as dread of electricity will increase cardio-vascular excitement, so will removal of the cause remove it. Hence the diminution of the pulse rate on the first application is frequently enormous, owing to the fact that, as the galvanization is painless, the patient's dread is removed, and not to any special effect of the application.

He describes several cases of Graves's disease in full which recovered under this treatment. One case, a woman at the change of life, suffering from occasional uterine hæmorrhages, derived but little benefit, and so gave up the treatment. Another patient, a young woman, recovered from all but the ocular symptoms, which were about the same after eight months of the treatment as at the commencement of it.

[There can be no question of the beneficial effect of Mr. Cardew's method of galvanising the neck in some cases of Graves's disease. Following his directions, we have employed it with success, and confidently recommend a trial of it.]

# DISEASES OF THE LUNGS AND ORGANS OF RESPIRATION.

By E. MARKHAM SKERRITT, M.D. LOND., F.R.C.P.,

*Lecturer on Medicine in the Medical School of University College, Bristol, and  
Senior Physician to the Bristol General Hospital.*

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## I.—PNEUMONIA.

### **I. The production of immunity against, and the cure of, pneumonia.**

Drs. G. and F. Klemperer (*Berl. klin. Woch.*, Aug. 24 and 31, 1891) publish a research on pneumonia carried out to prove how immunity against the pneumococcus can be secured, whether recovery from the disease confers immunity against it, and whether pneumonia can be cured by the blood-serum of animals that have recovered from it. Their experiments, confined to rabbits, show that the inoculation of any nutrient medium in which the pneumococcus has been cultivated will protect an animal against pneumonic septicæmia, even after the cocci have been removed by filtration. Some interval, however (from three to fourteen days), must elapse between the inoculation and the production of immunity, and hence it was too late if the inoculation was made when the disease appeared. On the other hand, serum from animals enjoying immunity cured pneumonic septicæmia, especially if introduced directly into the circulation. In twelve successive cases, eight cubic centimetres injected twenty-four hours after infection, when the animals had a temperature of 105° to 106·5° F., got rid of the fever within twenty-four hours. It was found that when the pneumococcus enters the body of an animal it generates a poison, "pneumotoxin," which can be isolated; this sets up a febrile condition lasting several days, by which time another substance, "antipneumotoxin," has been formed, which neutralises the pneumotoxin. The serum of an immune animal contains this antipneumotoxin, and through its influence cures pneumonic septicæmia. The crisis takes place as soon as enough antipneumotoxin has been produced to neutralise the pneumotoxin. It was further found that the disease is caused



by the pneumococcus in both rabbits and man, but that the latter is much less susceptible to it. Pneumotoxin and antipneumotoxin were both present in human serum during pneumonia.

## **2. The inhalation of oxygen in pneumonia.**

Dr. A. N. Blodgett (*Boston Med. and Surg. Journal*, No. 21, 1890) reports a remarkable case of pneumonia successfully treated by the continuous inhalation of oxygen. A lady, aged thirty-seven, of neurotic temperament, had an attack of lobar pneumonia of the right base, with marked general symptoms. After the first few days the inflammation spread to the upper part, and excessive dyspnoea set in. Energetic stimulation and counter-irritation were of no permanent use. Inhalations of oxygen were then administered, the gas being conducted to the patient's mouth after passage through a wash-bottle and dilution with 10 per cent. of nitrous oxide. For a short time very marked relief followed; but the dyspnoea returned again and again, though each time staved off by the inhalation, and at last the continuous inhalation of the gas became essential. At one time the supply of gas began to fail, and before fresh could be obtained the patient was moribund. It was then given by artificial respiration, and the patient again rallied. The inhalation was then continued for 106 hours without intermission, and at the end of this time the breathing was healthy and natural, and recovery followed without further accident. The temperature fell during the prolonged inhalation. On an average 200 gallons of oxygen were consumed in twenty-four hours. The author says that the effect was "almost as pronounced and evident as is that of ligature in hæmorrhage." (See also *Year-Book* for 1891, p. 41, § 16.)

## **3. Pneumonia in pregnancy.**

Dr. Fraigniaud (*Archives de Tocolgie*, Nov. 1, 1890) discusses the mutual influence of pneumonia and pregnancy, and points out that abortion occurred in half the cases recorded; the later the onset of pneumonia in pregnancy, the more certain is abortion, and the worse the prognosis for mother and child. In eighteen cases where pneumonia caused premature labour, nine patients died; whilst of twenty in which pregnancy was not interrupted, only one died. In spite of this, some authorities are in favour of inducing labour when pneumonia sets in.

## **4. The origin and prevention of broncho-pneumonia in children.**

Dr. E. Mosny (*Brit. Med. Journal*, Suppl., Mar. 21, 1891) discusses the question of the lesions, causes, and prophylaxis of broncho-pneumonia, and concludes that secondary broncho-pneumonia (as occurring in measles, whooping-cough, etc.) is due,



not to the pathogenic organism of the primary disease, but to one of two micro-organisms—generally the streptococcus pyogenes, rarely the pneumococcus lanceolatus. Both these forms are commonly found in the mouth in health; and the lungs of a patient whose vitality is lowered by measles, or some other acute disease, may become infected from this source, but probably more commonly from want of cleanliness and antisepsis in the surroundings. This view appears to be confirmed by the experience of the Paris isolation wards, in which large numbers of children suffering from the same infectious disease were treated together and in rapid succession. Under these conditions the “secondary infections” or complications increased, and hence the mortality was greater. The remedy is to be found in antisepsis—in disinfection of the wards, of the excreta of patients, and of the clothes worn and the instruments used by attendants. Remembering also the possibility of auto-infection, the author advocates the application of antiseptics to the naso-pharynx.

MM. Méry and Bouloche (*ibid.*, April 25, 1891) report the result of the examination of the saliva in forty-eight consecutive cases of measles in children. The pathogenic organisms found were the pneumococcus lanceolatus (fourteen cases), and the streptococcus pyogenes (eleven cases)—*i.e.*, one or other of these microbes was present in 52 per cent. of the cases. In twenty children suffering from chronic diseases, or from non-respiratory acute diseases, the same micro-organisms were present in 15 per cent. They further show that the secondary bronchial and pulmonary affections of measles occur, with few if any exceptions, only when the saliva contains the pneumococcus or the streptococcus; and hence they conclude that great care should be taken to render the mouth aseptic during measles.

## II.—PULMONARY TUBERCULOSIS.

### 5. Koch's treatment of tuberculosis.

INTRODUCTION.—The interest of the medical world during the past year has been centred upon the outcome of the use of tuberculin, introduced by Koch as a specific remedy for tuberculosis (*see Year-Book* for 1891, p. 55, § 38). It has been thought well to devote considerable space to this subject, in order to follow the remedy from its introduction down to its position at the present time. The sanguine hopes which Koch's world-wide scientific reputation appeared to warrant were early shaken, and especially by the discussion at the Berlin Medical Society in December and January, when Virchow brought forward overwhelming patholo-

gical evidence to prove not only that Koch's theory of the effect of tuberculin upon tubercle was not borne out, but also that the use of the fluid might entail grave results. At the same time, it was difficult to avoid the conclusion that the remedy did exercise a marked influence upon tuberculosis which might be turned to good account; and attention has since been directed to the endeavour to determine how far, and in what conditions of the disease, it is likely to prove beneficial. The investigations into the composition of tuberculin recently reported by Dr. Hunter and Mr. Watson Cheyne are of great importance, and, if further experience bears out the conclusions arrived at by these observers, tuberculin may yet be destined to hold a prominent position in the treatment of tuberculosis.

#### **6. Koch on the nature of tuberculin.**

Koch (*Deutsche med. Woch.*, Jan. 15, 1891), in "a further communication on a remedy for tuberculosis," traces the steps which led to the discovery of tuberculin. If a healthy guinea-pig is inoculated with a pure cultivation of tubercle bacilli, a hard nodule forms which leads to an ulcer persisting till the death of the animal; but if tuberculosis already exists, necrosis of the epidermis at the site of injection occurs, and an ulcer results which heals quickly without infecting the neighbouring lymphatic glands. The same result follows the injection of dead bacilli. Further, pure cultivations of dead bacilli, ground down and suspended in water, can be injected into healthy guinea-pigs in large quantities without producing anything but local suppuration; whereas tuberculous animals are killed in from six to forty-eight hours by very small quantities, while a dose which will not kill causes widespread local necrosis of the skin. If the solution is still more diluted, and the injections are continued, the ulcer at the point of inoculation gradually heals—which otherwise never occurs. Enlarged glands become smaller, nutrition improves, and the disease is arrested if not too far advanced. The bacilli, however, long remain unchanged where they are injected, and keep up local suppuration. Thus it was clear that the curative effect on tubercular lesions at a distance from the site of injection must be due to a soluble substance which entered the circulation, while the bacilli themselves remained behind exciting pus formation. The problem, therefore, was to extract and isolate the curative substance from the bacilli. After much work the active principle was extracted from the bacilli by means of a 40 to 50 per cent. solution of glycerine; and the fluid now used is therefore a glycerine extract of pure cultivations of the tubercle bacillus. It also contains mineral salts, pigment, and extractives,



which are, however, harmless, and therefore need not be separated. The active principle is probably a derivative of albuminous bodies, but is not a toxalbumin, as it is not destroyed by high temperatures, and passes readily through the membrane of the dialysator. It is precipitated by alcohol. The quantity present in the extract is perhaps less than 1 per cent.

The remedy probably acts in the following way. Tubercle bacilli produce in living tissues, just as in artificial cultivations, a substance which in a certain strength destroys protoplasm, and causes the "coagulation-necrosis" of Weigert. The dead tissue thus formed checks the development of the bacillus, which may even die. Now, if the necrosis-producing material is artificially added to that present in the tissue round the bacillus, the necrosis will extend further, and result in disintegration and sloughing of tissue, the bacilli being contained in the *débris*. Thus the nutrition of the bacilli would be so interfered with that they would die much sooner than under ordinary conditions. It is thus that tuberculin probably acts:—wherever tubercle bacilli have already impregnated their surroundings with the necrosis-producing substance, the effect of the added tuberculin is to cause a more or less extended cell-necrosis, with the accompanying disturbance affecting the system generally. Even in health a comparatively large dose has an injurious effect on certain elements of the tissues—probably the leucocytes or cells related to them—and hence the fever and other phenomena of the general reaction.

#### **7. Discussion at the Berlin Medical Society.**

A most important discussion on Koch's treatment of tuberculosis took place at the Berlin Medical Society in December and January last (*Berl. med. Woch.*, Dec. 29, 1890; Jan. 12, 19, 26; Feb. 2, 9, 16, and 23, 1891).

**B. Fraenkel**, who opened the discussion, dwelt largely upon the effect of the injections in laryngeal tuberculosis (*see* p. 436, § 21). He stated that the phenomena produced could be watched with the laryngoscope, when it would be seen that local reaction always preceded general reaction; hence he argued that the reaction fever was secondary to and dependent upon the absorption of disintegrated tissue from the site of the local reaction, and that therefore fever was not essential to the process of local cure. The best dose was that which kept the fever below 39° C., and the outlook was favourable in proportion as the fever present was due to the reaction rather than to the disease; although, if the case was not too far advanced, it was possible that the hectic type of fever might give in to the reaction type. In pulmonary phthisis,

he had found dulness diminish, bronchial breathing lessen in extent, or even disappear, sputum lessen and become simply mucous, and the bacilli change in character, becoming broken, &c. —changes, however, that might be met with apart from Koch's method. He could not claim cure in any case as yet, the test being the disappearance of bacilli and the absence of reaction to large doses of tuberculin. He concluded by saying that, on the whole, he had seen improvement under tuberculin, which he was convinced was a true remedy for tuberculosis.

A. Fraenkel exhibited a case of tuberculosis of lung, larynx, and tongue, as an instance of the further dissemination of tubercle under treatment with tuberculin. The patient had been under treatment for seven and a half weeks, and had had thirty-five injections, beginning on Nov. 22. The tongue was absolutely normal at the commencement, but on Dec. 10 a small aphthous-like ulcer appeared on it, which slowly increased in size. At first no bacilli were found in its base; in the course of a fortnight painful infiltration of the side of the tongue set in, the ulcer extended, and in the secretion from its vascular base numerous bacilli were found. The ulcer continued to increase in size, and miliary tubercles and cheesy nodules appeared in its floor. Microscopical sections from the tongue were exhibited; one, from the border of the ulceration, showed an enormous infiltration of bacilli, and in the other, from an adjacent miliary nodule, were giant and epithelioid cells and also bacilli. Later in the discussion he quoted statistics of sixty-one cases of lung disease, forty-eight of which had been treated for more than seven weeks, some as long as eighty days. Two deaths had occurred: one from tubercular meningitis, in a patient who came in with this affection; and the other in an advanced case of phthisis, in which, though death was probably hastened by the treatment, yet no acute pneumonia or congestive process had been set up. In seven the injections had to be stopped—on account of hæmoptysis in three, severe dyspnoea in one, and in three others increase of fever and of local lung lesions. In three cases the bacilli disappeared, and the patients improved remarkably in general health; in twenty-eight, *i.e.*, about half of the medium cases, the nutrition improved, but the bacilli remained; the rest of the medium cases did not improve, and nine became distinctly worse under treatment. Bad cases should never be touched.

Baginsky related a case in support of the one brought forward by A. Fraenkel; after the twenty-first injection small grey nodules like tubercles appeared in the tonsil; meanwhile the tubercle in the gum, for which the treatment was adopted, steadily



became worse, uninfluenced by treatment; and while an ulcer in the nose cicatrised, small grey nodules appeared around it.

Virchow exhibited numerous specimens from twenty-one cases that had died under treatment up to the end of December (in addition some six or seven deaths had since occurred, besides a large number in other hospitals and in private, where his assistants had made the post-mortem examinations). Of the twenty-one, sixteen were cases of pulmonary phthisis. Speaking generally, it might be said that tuberculin acted on internal organs in the same way as it could be seen to do in the case of external lesions—that is, it set up internally the same acute irritation with intense redness and great swelling. This was well shown in a case of tubercular meningitis in a boy aged  $2\frac{3}{4}$  years, who died after four injections—the last of which was given sixteen hours before death; the lungs contained old-standing patches of caseous pneumonia, together with recent inflammatory changes; and the pia mater and brain substance showed such colossal hyperæmia as the speaker never remembered to have seen before; the tubercles themselves were well formed, and showed no signs of retrogressive changes. Similar acute hyperæmia and swelling were also seen in other internal parts; and it was specially noted that the granulation layers lining old pulmonary cavities were unusually and intensely red, the walls were often the seat of hæmorrhagic infiltration, and recent hæmorrhage into the cavities was also observed. Thus the death of one patient was due to hæmorrhage from an old ulcerated cavity. Not merely, however, was transient congestion produced in internal parts, but active inflammations occurred to an intense degree. This was most marked in the edges of existing ulcers, and in the neighbouring lymphatic glands, especially the bronchial and mesenteric. The glands were quite unusually enlarged, from rapid cell-proliferation such as was characteristic of acute irritations. In harmony with this was the frequent increase in number of the white blood-corpuscles—to which condition of leucocytosis might perhaps be due the infiltration of affected parts, and especially the neighbourhood of tubercles, with white blood-corpuscles. In some positions these swellings might be very dangerous, as in the larynx. Sometimes phlegmonous inflammations occurred, resembling erysipelatous œdema of the glottis and retropharyngeal abscess. It would be difficult to say whether any given inflammation had or had not been caused by the injections, as there were as yet no known features by which inflammation resulting from injection could be absolutely distinguished from what might occur in the ordinary course of phthisis. But the condition of the lungs in

these patients was often remarkable. In the large majority recent changes of great extent existed, and also very severe pleurisy—simple and tubercular, often hæmorrhagic, and not uncommonly bilateral. The changes in the lungs might be divided into :

1. Caseous pneumonia, or caseous hepatisation. It was very doubtful whether this was directly due to the injections ; in fact, he (Virchow) would be inclined to deny it were not some of the cases of very special signification. One case showed caseous hepatisation more extensive than he had seen for years ; the lower lobes of both lungs were affected, and the individual foci were so closely packed as to leave hardly any normal tissue between them. Six injections had been given, the last a month before the patient's death ; and they had been stopped because continuous fever set in, with infiltration of the lower lobe. Before treatment there had been only consolidation of one apex, which was much older and firmer in character. Hence the occurrence of the more acute changes after the injections was undoubted. In other cases the whole condition of the lungs differed much from what was usual in phthisis ; and out of the sixteen cases no fewer than five showed more or less recent caseous hepatisation.

2. "Injection" pneumonia, an inflammatory condition most like catarrhal pneumonia, but having certain differences. Ordinary catarrhal pneumonia was characterised by accumulations in the alveoli, easily squeezed out, and comparatively fluid, sometimes almost gelatinous. In injection pneumonia the product was not gelatinous, but very watery and turbid, resembling that met with in phlegmonous inflammation, being softer, moister, and looser than in ordinary catarrhal pneumonia. There was also another distinguishing feature. In some cases softening had taken place in the affected patches, quickly leading to breaking down of lung-tissue and consequent excavation, such as is hardly met with except in gangrenous broncho-pneumonia ; apparently showing that a more potent injurious influence had been at work than was usually met with in catarrhal pneumonia. In fact, the speaker was under the impression that some of these cases illustrated the occurrence in the lung of inflammatory processes similar to those met with on the external parts after injection, and varying in intensity with the susceptibility of the patient and the special features of the case. This injection pneumonia, or diffuse soft hepatisation, occurred in seven out of the sixteen cases.

The specimens also bore on another most important point—the question of the development of fresh tubercle in patients under treatment with tuberculin. Here it was necessary to speak with



great reserve, as there was no certain basis upon which to determine the exact duration and age of the submiliary forms of tubercle. These were, however, on the whole to be regarded as fresh formations. In the larynx, in parts apparently perfectly free, small tubercles had developed under observation and given rise to new ulcers. It had been assumed that in such cases the tubercle had existed before the injections, which had caused its detection; and it was taken for granted that the tuberculin would attack and destroy them. In the examination of the internal organs, however, and especially of the serous membranes, which were the most reliable for the observation of fresh tubercle, the eruption of entirely new submiliary tubercles had been seen under circumstances that made it almost certain that they were of recent date. In pleura, pericardium, and peritoneum, the supposed influence of tuberculin upon these tubercles was never realised; they showed no signs of necrosis, but were perfectly intact, even when the injections had been made weeks before. An intestine was also exhibited in which entirely fresh submiliary eruptions had appeared near old ulcers; and in the same case fresh tubercles were found in the pericardium. It might thus be regarded as proved—(1) That miliary tubercles had first appeared after the injections, as in the larynx; and (2) That after a long course of treatment entirely fresh and uninjured tubercle had been found on the serous membranes. How did these new eruptions occur? If it were assumed that all tubercles were produced by bacilli, their presence in such out-of-the-way situations as the pericardium deserved special notice. One specimen exhibited could be explained only by supposing that the germs had reached their site by metastasis. If, as Koch himself allowed, the bacilli were not destroyed, the possibility could not be overlooked that if a process of softening was set up by this remedy the products of this softening would be displaced, and might by absorption give rise to new foci in other parts. And further; if during the treatment the whole lower lobe of a lung became filled with foci of caseous hepatisation, it was an easy step to the conclusion that material set free in the upper lobe by breaking up of tissue might be drawn into the lower part of the lung, and there set up caseous pneumonia, such as was caused by foreign bodies. Hence the need of caution in the case of patients who could not completely expectorate the broken-down tissue. Further, admitting the effect of tuberculin in causing the softening of tubercular tissue, why did not this occur universally? It had already been shown that submiliary tubercles often resisted the remedy; and while in some cases of tubercular pleurisy the individual tubercles,



especially if at all large, became disintegrated, in others nothing of the kind occurred even after persistent treatment. And even large tubercles were very refractory, as in a boy with bone tuberculosis, in whom a number of so-called solitary tubercles existed in the brain, but neither in them nor in their neighbourhood were any distinctive changes to be seen. In conclusion, attention was specially called to several specimens: one, the intestine from a patient with fresh pericardial tubercles; the intestinal ulcers were of old standing, with extensive surfaces and thick edges, in which new submiliary eruptions had occurred—the necrotic process reached right through to the serous coat, and if the patient had lived perforation must have occurred, as actually happened in a case mentioned by B. Fraenkel. From the same patient, a specimen of unusually severe tuberculosis of the larynx, showing a fresh and most marked eruption of tubercles over the whole of the larynx and trachea; twenty injections had been given, the last on the day before death. Two specimens illustrating the occurrence of fresh caseous hepatisation; one from a case in which six injections had been made, the last four days before the patient's death; and the other in which caseous foci and diffuse inflammatory processes were found side by side in a case where three injections only had been given, the last ten days before death. And lastly, a specimen showing the formation of abscesses in the lungs, starting from bronchiectasis of the lower lobe.

Later in the debate Virchow reported further deaths under the treatment, and laid special stress on the case of a man, fifty-four years of age, who was admitted on October 10th with right pleuritic effusion; up to November 26th tuberculin was not used, and the patient did well, there being no fever or loss of weight. From November 26th to January 9th five injections were made; continued fever set in, and on January 21st the man died. *Post mortem*, besides old consolidation at both apices, and signs of old pleurisy, there was a most unusually widespread miliary tuberculosis. In another patient, with a small amount of old apical phthisis, extensive and quite fresh cheesy and ulcerative changes were found, which must have come on during the injections—fresh catarrhal hepatisation existing, together with miliary nodules scattered throughout the lungs.

It was probable that when consolidation cleared up under observation it had been due to simple catarrhal pneumonia, which often thus disappeared in the course of phthisis.

Lazarus reported the case of a young man who before treatment was strong and robust, and had only slight dulness at the

left apex. After the injections, the greater part of the right lung became consolidated, and a "colossal" pyo-pneumothorax led to the death of the patient. Large recent cavities existed in the right lung, on the point of bursting into the pleura; the rupture of one or more of these was probably the cause of the pneumothorax. Here a great waking-up of tuberculosis had occurred under treatment.

P. Guttman gave the results in about 170 cases of phthisis in the Moabit Hospital, almost all of which were still under treatment. Of forty-one cases of early phthisis, the great majority were distinctly benefited. The gain of weight varied from 1 to 13 lbs., and in only five had there been loss; in a fair number physical signs improved, râles becoming fewer, and in some there being a certain amount of diminution in dulness; and the patients felt better in themselves. The two girls previously reported as cured (*see* p. 51) remained well, and in a third case cough and night-sweats had disappeared, and râles, formerly abundant, were now very few. In advanced cases distinct improvement occurred in a few. The result depended on the selection of cases; only early cases should be treated; advanced cases should be let alone, even if they were fever-free.

Körte, Jun., found that in cases of joint-disease in children which were being treated with iodoform injections, the reaction of tuberculin was always retarded, never reaching its height till the second day, and in many not beginning till two days after the injection. In one fatal case it was certain that tuberculosis spread during treatment; a strong boy with diseased knee had much improved under iodoform, and could walk about; six injections were given; the reaction was marked, the knee became swollen and painful, and continuous fever set in; and the child died of tubercular meningitis.

Ewald stated that 114 cases had been treated in the Augusta Hospital. Of these five had died—two, however, were absolutely hopeless to begin with. In another, amyloid disease of the kidney existed, but the patient was comparatively well; the reaction after injection was slight, but the day after the temperature went up, and then remained high; hæmoptysis came on, and the man died the same day from collapse. In another, there was slight affection of one apex; when the dose had been gradually increased to 1 centigramme, profuse hæmoptysis occurred, and a cavity was discovered on the opposite side. The hæmorrhage continued, and miliary tuberculosis developed in the pleura. Of thirty-six cases discharged, seven went out because the result was not satisfactory; twelve because reaction had ceased before the full dose of



1 decigramme was reached—and of these, later reports were favourable in seven, unfavourable in two. As an illustration of the favourable results, a case was quoted in which cough, sputum, and night-sweats disappeared, weight increased from 138 to 148 lbs., and the general condition was good. Of fifteen cases that received the full dose of 1 decigramme, reaction had ceased in all; and in fourteen the condition remained favourable. It is noted that in these cases, although the auscultatory phenomena were more favourable, there was no change whatever in the percussion-note. No case was absolutely cured. Little importance was to be attached to variations in the number of bacilli in the sputum, as similar fluctuations occurred in the ordinary course of the disease. No general rule could be laid down for the application of the treatment, as apparently suitable cases often proved to be unsuitable; and a patient should be warned of the possible results of the injections, just as in the case of a surgical operation.

J. Israel summed up a long speech on surgical tuberculosis and lupus as follows:—The remedy did not influence tubercular tissue in all cases; sometimes it caused inflammatory processes rather than recognisable necrosis; there was no proportion between local and general reaction; and the amount of local reaction was no measure of the remedial effect—slight local reaction might give good results, and, in spite of marked local reaction, no curative effect might be produced.

Lassar quoted the case of a girl in whom tubercular ulceration of the thigh had existed for two years uninfluenced by treatment; after a month's injections the wound absolutely healed, and had since remained unaltered.

Flatau stated that a man with tuberculosis of the larynx, previously reported as much improved, had since become alarmingly worse, both locally and generally; opaque miliary tubercles had appeared, and the larynx was now to a great extent covered with miliary and submiliary nodules. He also cited the case of a young woman in whom improvement in lung-signs took place under treatment, but at the same time tubercular disease broke out in the pharynx, tonsils, and larynx, and continued unchecked by the injections.

Fürbringer had been obliged to give up the treatment in twelve cases, none of which were very advanced, but all showed some acuteness of the tubercular process. The presence of anything like hectic was a greater contra-indication than long duration of the disease and extent of infiltration of lung. "Provisional" cure had resulted in three cases, all in the first stage; extra-



ordinary improvement in fifteen in the first and second stages, as shown by diminution of dulness, râles, amount of sputum, and number of bacilli, and increase of weight, together with a general feeling of good health; ten first and second stage cases showed no definite improvement, and seven patients died. *Post mortem*, miliary tubercle was repeatedly found, and in several cases very marked caseous and catarrhal pneumonia; and while these changes might be found in phthisis apart from the injections, yet here both clinically and anatomically there was a striking intensity of the process, in two cases so pronounced that it was undoubtedly due to the injections. Clinical evidence showed that Virchow was right in thinking that catarrhal pneumonia might be set up by tuberculin; as in one first-stage patient, in whom considerable apical consolidation with moderate fever and much albuminous expectoration appeared, and in due course cleared up. It must also be allowed that miliary and submiliary tubercle often remained uninfluenced by the injections. It was advisable to use smaller doses at longer intervals.

Guttmann and Ehrlich had together examined the blood in twenty-eight cases, and had not found a single tubercle bacillus; they therefore concluded that Liebmman was mistaken in his assertion that bacilli were present in the blood after the injections.

Grabauer quoted a case of laryngeal disease, in which fresh miliary nodules appeared during treatment in parts before sound, and were proved to be tubercular by microscopic examination; these broke down into ulcers, and ultimately healed.

Henoch was convinced by his observations that in children the injections were not free from danger, but had caused acute pneumonia and cheesy infiltration, fresh miliary eruptions, and the onset of hectic where previously there had been absolutely no fever.

Silex quoted a case of lupus in which at first great improvement occurred, but later on the disease made rapid progress while still under treatment.

Dr. Paul Guttmann (*Berl. klin. Woch.*, Dec. 15, 1890) mentions two cases of reputed cure of phthisis. One patient was a girl aged 17, who had suffered from repeated hæmoptysis, and both of whose apices were affected with bacillary phthisis. After about ten weeks' treatment, cough was almost gone, the scanty mucous sputum contained no bacilli, the percussion-note was normal, there was no fever, and the general health was remarkably good. The second patient, a girl aged 25, had been ill for two years; and bacillary consolidation of the left apex to the third rib

existed. After the same period of treatment, no physical signs of consolidation could be detected, expectoration was but slight and free from bacilli, and the temperature was permanently normal.

Prof. Cornil (*Sem. Méd.*, Dec. 24, 1890) sums up as follows the conclusions to which he had then come. In lupus the injections cause abundant serous exudation, which crusts on the surface of the lesion; beneath this is a layer of white corpuscles containing numerous bacilli. Hence it would appear that the latter are not destroyed, but driven to the surface, and that improvement will depend upon the extent to which the products of the reaction can be got rid of. Bearing this in mind, the applicability of the treatment to pulmonary tuberculosis is very limited—in most cases it may indeed be dangerous. In acute or pneumonic phthisis, and in cases with large cavities, the injections are hurtful. Even in incipient phthisis the effect is very doubtful—as in the case of a boy in whom intense congestion at the apex accompanied each reaction, and tended to extend. In other instances hæmoptysis occurred, and in others pleuritic effusion. There is further the risk of lighting up active mischief in quiescent cases. Where, however, cavities exist freely communicating with the bronchial tubes, and when the general condition is good, tuberculin may be useful if the reaction produced by it is very moderate. Cornil quotes two cases of this description in which gain in weight and real benefit might fairly be ascribed to the treatment.

Dr. Renzi (*Brit. Med. Journal*, Suppl., Feb. 14, 1891) had used tuberculin in forty-four cases, of which thirty-seven suffered from pulmonary phthisis. Of these, four improved remarkably and five slightly, eight were stationary, thirteen were made worse, and two died. In the fatal cases, active ulceration existed in the cavities in one, and in the other intense hyperæmia and œdema of lung. Renzi points out, however, that in the former case only three injections had been given, while in the latter they had been discontinued for a week before death. He concludes that tuberculin has a great, though not an absolute, value as a diagnostic agent, and that so far it has not proved a reliable remedy for phthisis.

Prof. Cantini (*ibid.*) had used tuberculin in twenty cases of phthisis. In all cases there was notable lessening of night-sweats, and in some total cessation. The usual evening rise of temperature also disappeared, the temperature becoming normal except during the reaction. He concludes that "the observations, as a whole, confirm Koch's statements as to the action of his lymph, and the exceptions which are met with only confirm the rule."



The effects described by Virchow may occur in phthisical patients who have not undergone the treatment.

Dr. Martins, in a report to the Lisbon Sociedade das Sciencias Medicas presented by a Committee of the Society (*Brit. Med. Journal*, Suppl., Feb. 14, 1891), sums up the general result of observations on eleven favourable cases in the statement that "all the patients became worse under the treatment." In one, acute febrile pleurisy set in, and the injections had to be stopped; and *post mortem*, tubercle was found in the lungs, peritoneum, and mesenteric glands. In the upper part of the left lung the lesions were old, but in its lower part the tuberculous process was of a more acutely inflammatory nature and of recent date. In another case the treatment had to be discontinued on account of two attacks of intestinal hæmorrhage, presumably due to "the development of a new tuberculous focus, or the reawakening of a latent one." A man with cavity in the right lung became so much worse locally and generally that he declined further treatment.

Dr. J. Amann (*Brit. Med. Journal*, Suppl., Feb. 21, 1891) reports 400 cases of phthisis treated at Davos, and concludes that tuberculin has a most marked effect in breaking down the young tubercular tissue, as evidenced by increase in the quantity of sputum and in the number of bacilli present, with alteration in the form of the latter and in their power of retaining the stain. In 70 per cent. this increase of bacilli was noted, and in only a few cases was there slight diminution.

The Tuberculosis Commission of the University of Pennsylvania (*Univ. Med. Mag.*, Feb., 1891) report that fifteen patients under treatment for tubercle of the lungs or larynx presented fewer unfavourable symptoms than could be noted in a similar series of cases during winter under any other treatment. In one case cough and expectoration ceased, râles lessened, and the weight increased by five pounds. One patient died under treatment, and several others did not improve.

Dr. W. D. Smith (*Montreal Med. Journal*, Feb., 1891) reports three cases of pulmonary phthisis with practically no therapeutic result. In one the most important change noticed was decided loss of weight.

Dr. N. Senn ("Away with Koch's Lymph!"—*Philad. Med. News*, June 6, 1891) records his own experience of tuberculin in the Milwaukee Hospital during four months. The treatment was conducted with the greatest care, and its results were as follows:—Of eleven cases of surgical tuberculosis, in no case was there more than temporary improvement; while in several local extension of the disease occurred, with serious injury to the



general health. In forty-three cases of pulmonary tuberculosis the effects were more grave. In several of the fatal cases (eight) death was no doubt hastened by the treatment, while in a large proportion of the mild cases it contributed largely to the rapid extension of the lesion. He sums up by saying that while the injections produce no better results, they have caused more harm than almost any other plan of treatment; and he is fully convinced both of the danger attending the use of tuberculin and of its utter inutility in curing any form of tuberculosis.

### **8. Intravenous injection of tuberculin.**

Prof. Bacelli (*Brit. Med. Journal*, 1891, i., 25) has injected the fluid directly into the veins, the site selected being the bend of the elbow. He says that its action is more rapid (a doubtful advantage), and is produced when the ordinary injections have failed. For example, a lad with pulmonary phthisis reacted scarcely at all to doses of even 1 centigramme when injected subcutaneously; while 1 milligramme introduced into the vein caused slight reaction, and 3 milligrammes produced very marked general disturbance.

Dr. Ferrara-Bardile (*ibid.*) has tried the above method in one case, with similar results.

### **9. Official report on the result of Koch's treatment in Prussia.**

(*Die Wirksamkeit des Koch'schen Heilmittels gegen Tuberculose*, etc.—Berlin: Verlag von Julius Springer, 1891—published as a supplement to the *Klinisches Jahrbuch*. *Brit. Med. Journal*, 1891, i., 598.)

This volume, edited by Prof. A. Guttstadt, Lecturer on Medical Statistics in the Berlin University, includes fifty-five reports, of which forty-three are from university clinics and "polikliniks," two from non-clinical departments of the Charité Hospital, two from the Moabit Hospital, and eight from pathologico-anatomical institutes of universities. The period comprised is, as a rule, the last eight weeks of 1890, the extreme dates being September 12 and the middle of January. The total number of patients treated was 2,172; the total injections, over 17,500; the greatest number in any one case, 54; and the largest quantity of tuberculin in any one case, 3.826 grammes. Space will not allow of more than a brief summary of some of the principal inferences with regard to pulmonary tuberculosis that can be drawn from this elaborate report.

## I. DIAGNOSTIC VALUE OF TUBERCULIN IN INTERNAL TUBERCULOSIS.

P. Guttman believes firmly in its selective power; Leyden, Gerhardt, Schultze, Biemer, Ebstein, Mosler, Strübing, Peiper, Weber, Quincke, Finkler, and Schreiber express in varying degree their doubt as to its absolute diagnostic value; and Olshausen states that in pregnancy no reaction occurs when undoubted phthisis exists.

## II. THERAPEUTIC RESULTS IN PULMONARY TUBERCULOSIS.

(a) *The general results* are summarised in the following portion of Table I. (p. 904):—

TABLE I.—*Statistical Statement of the Action of Koch's Fluid in Tuberculosis of Internal Organs.*

Diseases.	Number of Cases Treated.	Cured.	Substantially Improved.	Improved.	Unimproved.	Died.
<b>I.—PULMONARY TUBERCULOSIS:</b>						
1. Early pulmonary phthisis ...	242	9	72	59	93	0
(a) With laryngeal tuberculosis	30	0	10	6	13	0
(b) With tuberculosis of other internal organs ...	7	0	1	2	4	0
(c) With other diseases ...	8	0	0	1	6	0
2. Moderately advanced pulmonary phthisis ...	444	1	68	68	278	6
(a) With laryngeal tuberculosis	85	1	10	11	37	2
(b) With tuberculosis of other internal organs ...	15	0	1	4	5	2
(c) With other diseases ...	14	0	0	0	7	2
3. Very advanced pulmonary phthisis (cavities) ...	246	0	7	31	162	30
(a) With laryngeal tuberculosis	60	0	1	4	45	5
(b) With tuberculosis of other internal organs ...	24	0	1	2	17	1
(c) With other diseases ...	16	0	0	1	7	5
* Totals ...	1191	11	171	189	674	53

\* The difference between the total number of cases and the number in which the result of treatment is given is due to the fact that a few reporters give no information as to the result.

(b) *Effect on Symptoms.*

1. *Weight.*—Of Gerhardt's sixty-one cases, twenty-two gained weight (1 to 10 lbs.), seventeen were unaltered, and twenty-two lost (1 to 17 lbs.). One of Senator's patients gained nearly 9 lbs. in a week, and several times increase of from 3 to 4 lbs. occurred in the same period; eight very advanced cases, with cavities, diarrhoea, etc., gained weight—some as much as 5 lbs. Biemer found increase in eleven (average, 2 to 3 lbs.; in one, 10 lbs.), loss in seventeen (1 to 6 lbs.), in the others no change. Weber noted gain in sixteen, loss in twenty-eight, no change in twelve. P. Guttman says weight increased in a large number of cases, the maximum gain being 15 lbs.

2. *Expectoration.*—Gerhardt says the sputum mostly increased at first, and in five was blood-stained; then it gradually decreased, and became more mucous. In several cases bacilli diminished at first; in very favourable ones they disappeared. Senator found bacilli become fewer in favourable cases, but never disappear. Ebstein has seen no change in the quantity or quality of the sputum or the number of bacilli. Weber says the sputum lessened in eighteen, increased in twelve, and in the rest remained as before. Lichtheim found both cough and expectoration almost always lessen after the subsidence of the reaction.

3. *Respiration.*—Gerhardt says that vital capacity increased in five out of ten cases.

4. *Physical signs.*—Gerhardt noted in many cases diminution of dulness and râles. In some favourable cases Senator found catarrhal signs and râles completely disappear. Neither Ebstein nor Mannkopff noticed any special change in physical signs. Fräntzel found râles almost disappear in some cases after treatment for a certain time.

5. *Night sweats.*—Senator records their cessation, even in cases where they had been considerable before treatment. Weber says that they lessened in eleven cases, increased in three. Lichtheim, Mannkopff, and Fräntzel also found that the injections checked night-sweats.

6. *General condition.*—Gerhardt says that three patients felt so well that they would leave the hospital, although not cured; but in ten cases the treatment had to be discontinued on account of weakness, persistent fever, or progressive loss of weight. Senator says that a large number of patients looked better, and were stronger and more cheerful. Biemer, however, found many patients complain that the treatment made them feel weaker and lower. Mosler noted an improvement in the patients' appearance. Weber says that the general condition became worse in twenty-



two patients, while thirty-three were satisfied with the effects of the remedy.

#### **10. Discussion at the Royal Medical and Chirurgical Society.**

Mr. Watson Cheyne (*Brit. Med. Journal*, 1891, i., 951) read before the Royal Medical and Chirurgical Society a most exhaustive communication on the "Value of Tuberculin in the Treatment of Surgical Tuberculosis," a complete summary of which would be out of place in this section. It may, however, be noted here that the author advocated a novel method of administering the drug. Tolerance as regards its general action was established as quickly as possible, and then the doses were repeated in rapid succession so as to keep up a constant local action; *e.g.*, if the initial dose caused fever, the same dose was repeated as soon as the fever subsided until no febrile reaction occurred. The same quantity was then injected twice daily, and, after two or three days, thrice daily. After three or four days the amount was increased, until ultimately doses of 1 to 2 or more decigrammes were given thrice daily. Thus a large quantity could be rapidly introduced without the production of fever after the first few injections, and with marked local improvement. The danger of dissemination of the disease had probably been greatly exaggerated; the chief risk was where tuberculous disease was combined with sepsis, when extension might take place, not of the tuberculous, but of the septic process. A series of important microscopical specimens was exhibited, showing the effect of tuberculin in producing small-celled infiltration of tubercle, and consequent degeneration of its epithelioid and giant cells, going on to more or less complete substitution of the invading small cells for the true tubercle cells, and ultimately the development of the former into fibrous tissue. Experiments with artificial tuberculosis in animals were quoted to show that in animals treated with tuberculin the disease was very much less advanced in the internal organs than it was in those not treated, in one case these organs being healthy. The following general conclusions were arrived at: In most cases the first effect of tuberculin was to cause improvement as regarded the tuberculous disease, but very rarely did this go on to complete cure; usually the case after a time came to a standstill, and, if treatment was given up at this stage, relapse would almost certainly occur. If, however, it was continued, the condition of standstill could be maintained for a considerable time in a certain number of cases. Old people required larger doses than young, and the results were much less marked. Only nine cases of phthisis were treated,

two of which were hopeless ; and in them no change in the lungs occurred. The remaining cases all improved in general condition, some very markedly ; in one the lung remained unaltered, while in the others improvement took place, varying from "slight" to "very remarkable." In phthisis the treatment should be persevered in for probably at least two years.

Dr. Douglas Powell (*Brit. Med. Journal*, 1891, i., 1068), in the discussion on Mr. Watson Cheyne's paper said that, of his thirteen cases, one, with double pleurisy and a suspicion of disease at one apex, with bacilli and hectic, was apparently exhausted by the treatment, and died of general tuberculosis. Of two cases of double phthisis in the second stage, in one the disease was unchecked, and in the other, after temporary improvement, there was now distinct advance in physical signs—three months from commencement and three weeks after cessation of treatment. In one case with old mischief in the right lung and recent in the left, the right lung did not react, but the left did, and the signs diminished. A lady with catarrhal phthisis improved greatly under a two months' course, and the physical signs lessened. In a case with dense consolidation in the centre of the right lung, after six weeks' treatment rapid softening occurred, with rheumatic pains, hectic, albuminuria, sweating, and vomiting ; the patient then began to mend, and was now distinctly better than before treatment. In another case, scattered signs cleared up, but a small cavity formed ; except for loss of 3 lbs. in weight, the patient was otherwise improved. Four cases of incipient phthisis all did well. Tuberculin undoubtedly hastened the second stage, or period of elimination of diseased tissue ; but experience only could decide in what cases it was safe to use it. It was doubtful if Mr. Cheyne's method of frequent injection was suited to internal tuberculosis, where efficient drainage could not be secured.

Dr. Delépine exhibited old specimens to show that the microscopic appearances described by Mr. Cheyne might be the result of ordinary inflammatory processes.

Dr. Hime thought that the curative results obtained both here and abroad were on the whole very gratifying. When a phthisical patient, rapidly losing weight, with anorexia, night-sweats, and profuse expectoration, after treatment for six or eight weeks showed general improvement, the result was so far satisfactory.

Dr. Theodore Williams said that his own experience of tuberculin was most disappointing (*see* p. 60).

Dr. Wethered said that in first and second stage cases which



he had watched tuberculin seemed to be of use, and in no case did cavity form. There was great amelioration of symptoms, especially of cough. Dyspnœa and night-sweats lessened, and appetite improved. Large doses did not seem to give better results than small ones.

Mr. Watson Cheyne, in reply, agreed with Dr. Delépine that there was nothing specific in the inflammation after the use of tuberculin; but what had struck him was the remarkable predominance of the organising appearances in the tubercles in his own specimens. He could not agree with Dr. Williams with respect to phthisis; all the four medical men he had treated had improved remarkably in general condition, and also to some extent locally.

#### 11. Discussion at the Medical Society of London.

Dr. G. A. Heron (*Trans. of the Med. Soc. of Lond.*, vol. xiv., p. 372) introduced an important discussion at this Society on April 20, 1891. He said that in selecting patients for treatment he had been guided by Koch's explicit statement to him that he hoped for cure only in cases where but a small portion of one lung was slightly affected, and where there was no sign of excavation; or where small portions of both lungs were similarly affected. In the dearth of such typically early cases amongst hospital patients, it was often necessary to select patients whose conditions of disease were least distant from those of the type. The number of patients treated was thirty-seven. Amongst other peculiarities of the reaction, in the case of a man aged 22 the temperature always began to fall in five or seven hours after the injection, and often reached 96° in from nine to twelve hours. Very severe reactions were, as a rule, the result of large doses of tuberculin given at the beginning of treatment, and could, therefore, usually be avoided. Physical signs might increase during the injections; moist râles often became coarser and more numerous at the site of disease; and in parts of the lung where no signs of disease before existed, moist sounds were heard in many instances just like those present over the site of early lung tuberculosis. These features were noticeable during reaction, and lasted probably twenty-four or thirty-six hours. In most cases the new signs disappeared as the treatment continued, but exceptionally remained for one or two weeks; though even then the new sounds always rapidly lessened in amount and extent; and in no case did they exist when the patient left the hospital. Increased dulness sometimes accompanied these new physical signs. In such cases the effect on the lung was probably similar to that seen externally in lupus, where marked swelling of the affected parts and of healthy



tissue around took place. When new physical signs developed in parts before apparently sound, they were probably due to the existence of disease not detectable by the stethoscope. With one exception, all the patients who showed hectic symptoms had done so before treatment; and in all the hectic gradually passed off; showing, however, its usual tendency to recur, in spite of tuberculin. The cases treated were divided into three classes:—

(1) Very early cases, such as Koch considered most suitable; not one had been cured beyond fear of relapse. (2) Second-stage cases, with considerable tracts of lung tissue involved, without evidence of cavity. (3) Third-stage cases, with existing cavities. In every case, before treatment, the disease was not tending to cure, or even stationary. Of twenty-nine cases of phthisis tabulated, the following was the result:—First stage: great improvement, 4; material, 3; some, 4; none, 2; became worse, 1. Second stage: material improvement, 2; some, 5; none, 1. Third-stage cases: great improvement, 1; material, 1; some, 2; became worse, 3. Of fourteen first-stage cases, weight was gained in 8, unaltered in 4, lost in 2; of eight second-stage cases, gained in 5, lost in 2, not mentioned in one; and of seven third-stage cases, gained in 2, unaltered in 3, and lost in 2. Improvement was best shown by disappearance of cough and night-sweats, and by a material, sometimes very marked, increase in the patient's sense of freedom of breathing power and consequent ability to walk. Improvement in lung consisted in a gradual change from moist râles to dry cracklings associated with sounds due to friction. In those who did well, a great diminution of both moist and dry sounds occurred, but in no case did these absolutely disappear. As a result of experience thus far, tuberculin should be tried at the very commencement of pulmonary tuberculosis which was not in a quiescent state, because no known drug had anything like the beneficial effect of tuberculin upon those tubercular diseases which could be seen and handled, and evidence was accumulating to show that the beneficial effects produced by it in lupus and allied conditions were also produced in the diseased lung. And further, there was no evidence to show that there was material risk in employing tuberculin in very early stages of lung disease.

Dr. Theodore Williams had had fourteen cases of phthisis under this treatment, for periods varying from six to ten weeks. In five the disease was in the first stage; five had single cavities, and three had double cavities. Only six improved generally in weight and strength; the rest were all decidedly worse. As to the effect on the lungs, four of the first-stage cases showed somewhat

rapid cavity formation, bacilli became more numerous, and lung-tissue was constantly found in the sputum. In the cavity cases also extension of the disease was noted, and in one of the double-cavity cases two other cavities formed. At the end of treatment, excavation was found in twelve cases, excavation with tubercular spread in six, and tubercular spread without excavation in one. In two, the cavities contracted, and the patients left the hospital better; but the others did not do at all well, and in them the results could not compare with those of the ordinary expectant treatment. The injections converted tubercular masses into cavities, and set free bacilli, which led to fresh lung infection. Again, when the treatment was combined with residence at high altitudes, several patients lost ground who would undoubtedly otherwise have improved at high altitudes. The drug seemed to have an extraordinary effect in increasing the amount of lung-tissue expectorated; it was found in the sputum in almost all the cases, and throughout the treatment. Bacilli were also increased in number in most.

**Dr. Bagshawe** quoted a case of tubercular consolidation of lung, in which for the first three weeks of treatment the lung remained quiet, but then the consolidation broke down into cavity, with profuse expectoration and fever. These subsided in a week, but a septic condition arose, with evidence of ulceration of bowel, and a round ulcer formed under the tongue; hæmaturia also appeared, probably due to an ulcer in the pelvis of the kidney. Two months later, all evidence of secondary ulceration had subsided, the lung cavity had contracted, percussion was no longer wooden, and sputum was much lessened and free from bacilli. The temperature remained high (101°—102° F.), and there was some extension of dulness in front of the lung.

**Dr. Heron**, in reply, said that not only did the patients feel better, but there was evidence of improvement in the state of the lung, coarse sounds becoming finer, and moist sounds drier. He had not found clear proof of cavity formation under treatment—in only one case was it questionable whether it did occur; and he thought that Dr. Williams's experience was exceptional. He had often found lung-tissue in the sputum, but not to the extent described by Dr. Williams. He could not demonstrate in any case extension of disease in the lung under treatment.

## 12. Modifications of tuberculin.

Much interest has been excited by the recent publication of Dr. W. Hunter's researches on the active principles of tuberculin (*Brit. Med. Journal*, 1891, ii, 169), and by a joint communication on the same subject made by Mr. Watson Cheyne and Dr. Hunter



to the Annual Meeting of the British Medical Association (*Brit. Med. Journal*, 1891, ii., 294).

Dr. Hunter found tuberculin to consist of—(1) Albumoses, chiefly protoalbumose and deutoalbumose, with heteroalbumose, and occasionally a trace of dysalbumose; (2) Alkaloidal substances; (3) Extractives, small in quantity and of unrecognised nature; (4) Mucin; (5) Inorganic salts; (6) Glycerine and colouring matter. Hence its active properties could only be connected with albumoses, organic bases of alkaloidal salts, and probably various extractives. Observations on animals were next made to determine to which of these tuberculin owed its various characteristics, and four modifications were prepared.

*Modification A.*—This contained the total precipitate thrown down from tuberculin by absolute alcohol; it consisted chiefly of albumoses, with traces of mucin, glycerine, colouring matter, and salts.

*Modification C.*—This was the counterpart of *A*, and contained all the constituents of tuberculin not present in the latter. It was prepared by the evaporation of the alcoholic filtrate left after removal of *A*; it contained all the constituents of tuberculin, but in reverse proportion as compared with *A*—i.e., excess of salts and other soluble substances, and little albumose (about  $\frac{1}{10}$ th of the whole).

It was next found that both *A* and *C* caused absorption and disappearance of tuberculous tissue; but while *A* produced decided and even severe local inflammatory reaction, with little, sometimes no, fever, in the case of *C* the local improvement was attended with no local inflammation and yet high fever. This seemed to point to the salts rather than the albumoses as responsible for the fever, which view was confirmed by the removal from *A* of the small amount of salts it contained, when it was found to have altogether lost its power of producing fever. In order, therefore, to remove the fever-producing agents, and obtain, if possible, all the remedial substance present in *A* and *C*—

*Modification B* was produced, which consisted of the whole of the albumoses of tuberculin (precipitated from it by ammonium sulphate). This was found to possess in an eminent degree the power of inducing local reaction, followed by healing change around tuberculous tissues, unaccompanied by any constitutional disturbance whatever.

*Modification CB.*—The healing action of *C* differed from that of *A* or *B* in one important respect—that there was no local inflammation, or any sign of local reaction, other than the scaling followed by steady improvement in the affected area (in lupus).



This difference was to the advantage of *C*, as in internal tuberculosis the production of local inflammation is a serious drawback. Accordingly, the salts causing the fever were separated by dialysis from the albumose still remaining in *C*, and the solution *CB* was made containing the albumose alone. This solution induced very distinct local improvement, unattended with fever, and, still more markedly, accompanied by scarcely any noticeable inflammatory reaction.

The following conclusions are drawn :—Tuberculin owes its activity to at least three (and probably more) different substances: albumoses, alkaloidal substances, and extractives. Its remedial and inflammatory actions are due to certain of its albumoses, while its fever-producing properties are chiefly associated with non-albuminous substances. The fever produced by tuberculin is thus absolutely unessential to its remedial action; and the same probably holds good with regard to the inflammation produced by it. The local action of the remedial substance is shown (1) by shrinking of the tuberculous tissues; (2) by increased scaling, indicating some deep local congestion. The power of favouring recurrence which tuberculin possesses is due partly to the non-albuminous substances removable by dialysis, perhaps also to a portion of the albumoses. Both the remedial substance and the albumoses probably belong to the class of proteins—albuminous substances derived from the plasma of the bacilli themselves, and not formed by the action of the bacilli upon the tissues.

Mr. Watson Cheyne discussed at length (1) the beneficial effects of tuberculin; (2) its hurtful action. With regard to the former, he had nothing to add to what he had said before (*see* p. 57, § 10). As to the latter, he had since been impressed with the action of tuberculin in some cases in apparently predisposing the body to the tuberculous infection, so that recurrence might take place with startling rapidity, and the disease might extend locally more quickly than before treatment, and might also break out in other parts of the body; and experiments on guinea-pigs were quoted to show that tuberculin actually rendered the animals more susceptible to tuberculosis. Under (3) "The Future of Tuberculin," Mr. Cheyne gave the results of his observations, in conjunction with Dr. Hunter, upon the effects of the modifications of tuberculin discovered by the latter. Patients treated with the filtrate *C* showed marked general reaction, but no noticeable local reaction; increased scaling of lupus patches, however, took place, and under continued injections the lupus gradually dried up and became depressed. *C* was soon discontinued, as, though it had remedial properties, it was objectionable on account of the fever

which it caused, and also because it seemed to contain something antagonistic to its remedial action. The results of experiments upon animals and observations on patients were summed up as follows:—All the substances, *C*, *CB*, *A*, and *B* have a certain amount of remedial action, but some have also very objectionable properties. Thus *C* causes very satisfactory local improvement by gradual drying up and dwindling away of the tuberculous tissue; it contains, however, a temperature-producing substance, and probably also one which is opposed to the remedial action. These injurious substances are got rid of by dialysis, and in the substance left, *CB*, there is a certain amount of remedial action without the objectionable symptoms. *A* has also a certain tendency to produce improvement, but it causes serious general disturbance, violent local reaction, and probably all the bad effects of tuberculin. By obtaining the total albumoses pure as in *B*, a material is got which does not cause any general disturbance, nor of itself raise the temperature, while it produces local reaction and subsequently distinct improvement. It thus appears that neither *A* nor *C* is suitable for practice, but that the remedial substance is present in *B* and *CB* in a condition free from the objectionable properties of tuberculin. Whether the substance which predisposes to relapse is also lost cannot yet be said; but probably the main part of this action resides in the alkaloidal salts, or in some other substances removed with them. The chief reason for this view is that when these alkaloidal salts were employed in the treatment of tuberculous guinea-pigs, the disease seemed to progress more rapidly than in others not so treated. In *B*, however, the substance which causes the local inflammation is still retained, and this inflammation is often most undesirable, especially in internal tuberculosis. On the other hand, in external tuberculosis the transient acute inflammation is sometimes a good thing, in which case *B* will be more useful than *CB*. Where no primary inflammation is permissible, we have in *CB* a substance in which this is reduced to a minimum, and from which all the other hurtful properties of tuberculin can be removed. Its disadvantage as compared with *B* is that its remedial action is much slower. In conclusion, Mr. Cheyne said that the ultimate value of these albumoses remained to be proved, and that while in surgery their use would probably take a place secondary to the more rapid and thorough operative measures, he could not but think that the result of getting rid of the noxious constituents of tuberculin would be to place this treatment in a prominent position in medicine.

Dr. Pringle, who had been entrusted with some of the fluids *C*



and CB, had used them in four cases of lupus, in three of which the results had so far been favourable; but it was as yet premature to pronounce definitely upon the value of the new derivatives of tuberculin. He pointed out that with the unmodified tuberculin relapse did not necessarily occur.

Mr. Keetley had in no case seen any sign of local spreading or distant infection in cases treated with tuberculin, and his experience on the whole had been very satisfactory.

Mr. Jordan Lloyd had treated seventeen patients with tuberculin, and had come to the conclusion that it was of no real value. Improvement took place in a certain number of cases, but when the injections were discontinued relapse always occurred. He referred to the case of a strong young man who had suffered for several years from suppurating cervical glands, but whose general health was most satisfactory. Only two injections of 3 milligrammes were given, as the reaction was severe. Acute miliary tuberculosis soon followed, and the *post mortem* appearances were exactly those described by Virchow.

Mr. C. A. Morton had examined the blood in fourteen cases of lupus and phthisis during the reaction and had never found any bacilli present.

13. Dr. E. Markham Skerrett (*Brit. Med. Journal*, 1891, ii., 1038), in a paper read at the annual meeting of the British Medical Association at Bournemouth, July, 1891, stated that, in conjunction with his colleague, Dr. Barclay Eason, he had been engaged for seven months in carrying out at the Bristol General Hospital a series of careful observations on the results of treatment with Koch's fluid. They had declined to inject patients except under the favourable conditions which a hospital afforded. The cases treated were some forty in all, and included eleven of lupus, twenty-three of pulmonary phthisis, and six of laryngeal disease.

The cases of lupus and of throat disease were first discussed, and the results obtained in pulmonary phthisis were then summarised as follows:—

1. *Stage*.—All stages were treated; the physical signs in some first-stage cases were so slight that, in the absence of bacilli, the diagnosis might have been disputed, but reaction occurred in all. Most of the patients were in the second stage, some in the third, including two well-marked cases of hectic.

2. *Effect on General Symptoms*.—In almost all cases improvement took place. There was usually an increase in weight, in several patients very marked. Cough and expectoration were often much diminished. Night-sweats were not pronounced to begin with, and were not much influenced. The improvement in



general health might, to a certain extent, be attributed to the better conditions under which the patients were placed in the hospital, but this would not apply in the case of some who were not of the class of ordinary hospital patients, and were admitted only for safety in treatment, but who benefited equally with the others.

3. *Influence on Physical Signs.*—(a) Disappearance was noted in two cases—one, a girl who got very fat under treatment, and in whom the physical signs of slight consolidation at the left apex disappeared; the other, a young man with similar signs at the right apex, which also disappeared; but in this case hæmoptysis had occurred just before admission, and it was possibly the clearing up of the results of the hæmorrhage, such as might take place apart from special treatment, and not the disappearance of a true tuberculous consolidation. (b) Diminution in several cases was very definite, consolidation lessening, and râles becoming much fewer. (c) Persistence unaltered: This was the rule in most cases, even in spite of considerable improvement in general health. (d) Increase: In two cases of hectic, where the progress of the disease seemed to be unaffected by the treatment, increase in the physical signs occurred. In another patient, a woman who when the injections were begun had limited dry consolidation at the right apex, marked local reaction in the lung followed the injections, with extension of dulness and appearance of moist râles; at the present time the increased dulness persisted, and also the râles. Here the treatment was open to the suspicion of having lit up active mischief in and around a quiescent focus. And again, the man referred to in (a) as having been dismissed with no physical signs of disease lately came to the hospital with evidence of considerable active mischief in the lung.

4. *Bacilli* were in most cases unaltered in number in spite of marked general improvement; in others they became much fewer; in others again they disappeared from the sputa for greater or less intervals; they were also noted to be sometimes changed in character, being stunted or broken. It was to be remembered, however, that all these variations might be met with apart from any special treatment, and often without any definite significance.

5. *Evidence of Cure.*—In no case where there was evidence of active disease did this disappear under treatment; in no case where moist râles existed at first did the lung dry up and the moist râles vanish.

6. *Comparison with other Methods of Treatment.*—The improvement obtained under Koch's method was not greater than that which might occur under other conditions; in fact, better results

were sometimes met with from other non-specific lines of treatment than had as yet followed the injections; as instanced by cases in which the signs of early consolidation had totally disappeared, or active disease at a later stage had become quiescent, under measures that were free from the risks that accompanied the use of tuberculin. It was to be noted that many of the patients were very pleased with their progress.

7. *Safety of the Injections.*—If the treatment was conducted with reasonable care, probably no serious immediate danger attached to the injections. In the cases treated at the Bristol General Hospital no symptoms had arisen sufficiently grave to cause anxiety. No patients died while under treatment. One in whom the injections were about to be commenced was attacked with profuse hæmoptysis, which recurred and speedily proved fatal; had this occurred later it would have been attributed to the treatment. In a girl, the substitution of water for tuberculin proved the severe symptoms following the injection to be of purely mental origin.

8. *Conclusions from the above Series of Cases.*—In some cases it might be fairly concluded that tuberculin had done decided good; in others that it had been negative in its effects; and again, in others that it had probably been harmful. As to the selection of patients for treatment, provided that very advanced cases were excluded, the experience obtained by careful observations during the past seven months had thrown no light whatever upon the subject, and the writer and his colleague were still absolutely at a loss for data to determine beforehand what were and what were not suitable cases for treatment with tuberculin.

#### **14. Pathological changes produced by tuberculin.**

Dr. Ziegler, for Prof. Birch-Hirschfeld (*Brit. Med. Journal*, Suppl., June 27th, 1891), brought forward at the Congress of Intern. Medicine a treatise discussing (1) The changes produced in tubercular organs by tuberculin; (2) the question whether these changes lead to the healing of tubercle, or to its diffusion or isolation within the tissues; (3) the extent to which the healing powers of tuberculin have been proved. Inflammation is doubtless set up in the tissues surrounding the tubercles, but Koch's view that necrosis of the tubercle is the primary process is improbable. The degree of inflammation varies—sometimes there is a simple effusion of serum, whilst at others there may be much cellular proliferation, or even suppuration. The inflammation may subside and its products be absorbed. The bacilli are not destroyed even in the inflamed areas. If the tubercles are on the surface, they may be disintegrated and thrown off by the



inflammatory process, an ulcer being left in their place. The bacilli are not all discharged with the tubercular material, but may find their way into the neighbouring lymph-channels. Tubercles beneath the surface are either absorbed or encapsuled after disintegration; their conversion into organised tissue is not possible so long as the bacilli are not destroyed. Absorption of disintegrated tubercle is accompanied by absorption of its bacilli, which may find their way into lymph-channels, blood-vessels, or air-passages, according to the situation of the tubercle. It does not follow that this escape of bacilli always gives rise to metastatic formation of tubercle, as the special character of the tissue into which they escape may check their further development. There is no reason to suppose that tuberculin confers any immunity. If tubercle becomes encapsuled without absorption, even if it contains bacilli, it is less harmful than if disintegration occurs. Undoubtedly healing may be observed after injections of tuberculin, especially in the case of mucous membranes. It must be remembered, however, that inflammatory processes round tubercular nodules are of very common occurrence, especially in intestinal tuberculosis, and also in the lungs and other organs; so that the changes induced by tuberculin are only those which may occur in the natural course of tubercle. They are, however, brought about more violently and rapidly, and in some situations set up where they would never ordinarily occur.

Dr. Ziegler expressed the view that both the healing properties and the dangers of tuberculin have been over-rated, although it is highly probable that in some cases the inflammatory changes set up by it have favoured the spread of tubercle. Marked development of bacilli often takes place in tubercles undergoing inflammatory disintegration, and the danger of their escape into other tissues is then considerable. In a case of diffuse tuberculosis the action of tuberculin is not universally manifest, and it would seem that some special condition of the peri-tuberculous tissues is requisite for the production of the inflammatory changes. No instance has yet been observed in which a tubercular nodule has become encapsuled as a direct result of the action of tuberculin.

Prof. Chiari (*Prag. med. Woch.*, No. 52, 1890) gives an account of the *post mortem* examination of three cases of phthisis which had been treated with tuberculin. In all the tuberculous foci there was great accumulation of leucocytes, with surrounding fibrinous exudation; and here, as also in the intestinal ulcers, marked hyperæmia and sometimes hæmorrhage. In the bronchial tubes, and on the surface of the intestinal ulcers, were large



collections of bacilli, suggesting a tendency to their expulsion from the tissues. These observations support those of Cornil (p. 52), and would indicate that hyperæmia with exudation and infiltration with leucocytes occur in tubercular foci in the lung much as in lupus of the skin.

Jarisch (*Wien. klin. Woch.*, No. 50, 1890) met with the following fatal case. Two milligrammes were injected into a girl aged 17, suffering from extensive lupus, but apparently otherwise healthy, except for occasional slight diarrhœa. The temperature reached 106.5° F., and the girl soon became comatose, and died in thirty-six hours. *Post mortem* examination revealed numerous disseminated pneumonic patches, with œdema of both lungs, great œdema of brain and spinal cord, acute swelling of chronically enlarged spleen, cloudy swelling of liver and kidneys, and capillary hæmorrhages into lung, pleura, pericardium, thymus, and spinal cord. In the abdomen, stricture of bowel from old ulceration existed, with tubercular deposits and ulcers in a state of acute inflammation. Some of the abdominal glands were infiltrated and cheesy.

Dr. Jürgans (*Wien. med. Woch.*, Jan. 3, 1891) relates the *post mortem* appearances in two cases of phthisis. In both the changes in the lungs were very widespread. The walls of the cavities were hyperæmic, but presented no caseous material; there was recent pleurisy, with much sero-sanguineous effusion. The tubercular ulcers—in the stomach, intestine, larynx, and trachea—had everywhere lost their specific character, and presented a surface covered with recent vascular granulations—in short, a healthy granulating surface. In one kidney was a caseous focus surrounded by a zone of intense hyperæmia; and, on microscopic examination, only an infiltration of pus-cells round the caseous centre existed; the author thinks that the whole might have been expelled by the urinary passages and cure thus effected, had there been no disease elsewhere.

Korányi (*Brit. Med. Journal*, Suppl., Jan. 3, 1891) reports a case in which a woman with advanced phthisis and diabetes died under treatment. *Post mortem*, both lungs were very œdematous; in the upper lobe of the left lung was a cavity as large as a fist filled with "a reddish sanguineo-muco-purulent mass"; the lung-tissue lining this cavity was covered with hæmorrhagic succulent granulations. Some smaller cavities also presented the same appearances. In several parts of the lung were caseous nodules, soft and juicy, greyish-yellow in colour, and greasy to the touch—mostly surrounded by a bright red zone of congestion. The author concludes that these phenomena show

that the injections set up in the lung a process analogous to what is seen in lupus.

Dr. Grasset (*Sem. Méd.*, Jan. 21, 1891) records a case of "apyretic pleuro-pulmonary phthisis," in which he considers that a single injection of one milligramme of tuberculin set up a fatal acute exacerbation of the disease. A man aged 21, of robust aspect and good history, had bronchitis six months before coming under treatment; cough and expectoration had persisted, and the man had lost strength, though his weight was unaltered. The physical signs were those of some consolidation, with probably a small cavity, in the right lung, the left being normal. Bacilli were numerous. The first and only injection was followed by marked reaction; three days afterwards hæmoptysis occurred for the first time, and the temperature rose to  $39.2^{\circ}$  C. Recurrent attacks of hæmoptysis followed, with persistent fever, and ten days after the injection a fatal hæmorrhage occurred. The tuberculosis—previously apyretic and limited to the right apex—became generalised through the right lung after injection, and extended to the left, and the disease took on the form of galloping consumption. The *post mortem* examination showed an empty cavity with fibrous walls in the consolidated right apex; in the middle of the lung was a patch of recent caseous hepatisation having the exact appearance described by Virchow (*see* § 7, pp. 45 to 48), and evidence of the latter's "injection pneumonia" also existed. In the middle and lower parts of the lung were five patches of red hepatisation, two as large as apples, the others the size of hen's eggs; they contained a central cavity the size of a walnut, of recent formation, containing a reddish-brown sanious fluid, and their walls were formed of pulmonary debris, with no trace of organisation. These cavities were evidently due to rapid destruction of the lung-tissue, and the hæmorrhage was the result of the consequent erosion of vessels. The base of the right lung was also infiltrated with apparently quite recent submiliary tubercles. The left lung contained a number of similar tubercles, but no patches of hepatisation.

Prof. Petroff (*Vratch*, No. 4, 1891, p. 125, in *Brit. Med. Journal*, Suppl., May 23, 1891) describes the *post mortem* appearances in two cases. In one, throughout both lungs were scattered groups of yellow, softened, unusually large tubercles, and a few small cavities. The lung-tissue was engorged, especially in the right lower lobe, in the area of extensive crops of tubercles, where it was also the seat of small extravasations. Tubercular ulcers existed on the tonsils, epiglottis, and intestines, being encircled by a congested zone; and there were a few tubercles in the substance of



the liver, spleen, and kidneys. The lungs in the second case (a woman aged 34, who died a month after the last injection) resembled those in the first, but large cavities existed in the upper and lower lobes, and numerous small ones were scattered all over these organs, giving them a spongy aspect. Microscopical examination revealed great dilatation of blood-vessels round the tubercular deposits and ulcers: hæmorrhages into the alveoli; infiltration of tubercles with multinuclear leucocytes, most dense at the circumference; and a similar infiltration round ulcers everywhere. In the second case the spongy pulmonary area proved to be altogether free from tubercle, the cavities existing in it being formed by destruction of alveoli. The author points out that these changes differ from those usually met with in tuberculosis, and are of an inflammatory nature; that in the second case the inflammatory process was of a suppurative character; and that there is every reason to believe that the unusual phenomena were directly due to the use of tuberculin; and further, that there could not be discovered anything like sloughing of tubercles or cleansing of tubercular ulcers.

Prof. Luebimoff (*Vratch*, No. 4, *ibid.*) describes another case in which the pleural surfaces were covered with fibrinous exudation; the upper portions of the lungs contained large cavities, while the middle portions were studded with broncho-pneumonic caseous foci, the sub-pleural lesions being surrounded by extravasations. The lower parts of the lungs presented "a shagreen appearance, which was due to the presence of closely grouped minute granules, mostly grey, but sometimes yellowish, and varying in size from a poppy-seed to a hemp-seed." The whole of the lung-tissue was of a very dark red colour; the bronchial glands were enlarged and dark red. Microscopically the lung-tissue showed "an extraordinary dilatation, here and there amounting to varicosity, of blood-vessels around the broncho-pneumonic foci, the vessels and alveoli being choked with red blood-corpuscles." The engorgement was so intense as to have caused some alveoli "to give way and to coalesce into a single hæmorrhagic cavity." A large extravasation existed in the stomach, together with numerous ecchymoses in the intestine.

### 15. Effects of tuberculin on animals.

M. Henocque (*Rev. de Thérap. Méd.-Chir.*, March 15, 1891) injected tuberculin into a monkey that showed no signs of phthisis. The injection caused a typical reaction, and two days afterwards dulness with a few râles was detected at the right apex. This increased in extent, and the left apex also became affected. The animal speedily died with all the symptoms of acute phthisis with



high fever. *Post mortem*, four tubercular nodules of the size of a pea were found in the right lung, with caseous pneumonia involving two-thirds of the left. All the tubercular lesions were surrounded by a zone of very intense red hepatisation.

M. Capitan (*ibid.*) injected two monkeys with tuberculin. No reaction at all occurred, although one animal was definitely tubercular, and the other was believed to be suffering from phthisis.

Prof. Bollinger (*Münch. med. Woch.*, Jan. 13, 1891) gives a summary of experiments with Koch's fluid made on three tubercular cows. Relatively large doses were employed,—0.1 g., 0.2 g., and 0.3 g.—in the three animals respectively. In all the temperature began to rise about eleven hours after the injection, and in height and duration corresponded to the dose administered—in the first animal reaching 40° C. and lasting four hours, in the second reaching 40.8° and lasting nine hours, and in the third reaching 41.7° and lasting ten hours. In the first cow, another injection of 0.3 g was given four days after the first; reaction came on in from eleven to twelve hours, and lasted four hours. No rise of temperature followed the injection of 0.3 g. in two healthy bulls which were used as "control" animals. Guttman and Bollinger therefore conclude that tuberculin is a most valuable aid to diagnosis in the case of suspected tuberculosis in cattle.

Dr. J. M'Fadyean (*Brit. Med. Journal*, 1891, i., 635) injected 2 centigrammes of tuberculin into a tuberculous cow, with resulting elevation of temperature to 105.6° F., greater frequency of pulse, increase in cough, and tenderness in enlarged glands; rather less reaction followed a dose of 4 centigrammes, but an injection of 8 produced about the same effect as the first injection. In a second cow, similar doses produced no result beyond increased cough and laboured breathing; *post mortem*, although most extensive disease existed, not the slightest trace of reaction could be detected in the tubercular parts.

M. Jaccoud, at a meeting of the Académie de Médecine (*Sem. Méd.*, Feb. 11, 1891), gave an account of experiments made to test the truth of Koch's statement that by repeated injections of tuberculin healthy guinea-pigs could be rendered proof against the inoculation of tuberculosis. A total amount of 50 centigrammes of the fluid was given in two series of injections to an unusually robust guinea-pig; the only effect was the loss of 26 grammes in weight. A piece of a gland from a tubercular guinea-pig was then introduced under the skin of the shoulder, and the animal died in a month, having lost much weight. The axillary glands were tubercular, and grey granulations existed in both lungs, together

with masses of caseous tubercles in the liver and spleen. A small "control" animal which had been inoculated with the same gland at the same time had already outlived the "protected" guinea pig by six days.

M. Dujardin-Beaumetz stated that he had made similar experiments with like results. He first treated tubercular guinea-pigs with the injections, which proved powerless in warding off death; others he first inoculated with tuberculin and then with tubercle; in others, again, he first inoculated tubercle and afterwards injected Koch's fluid. In all cases the "subjects" and the "control" animals alike died from tuberculosis.

#### 16. Cantharidinate of potash in tuberculosis.

Prof. Oscar Liebreich (*Berl. klin. Woch.*, March 2, 1891), in an important communication to the Berlin Medical Society on the action of the cantharidates, reports observations to show that cantharidin produces, not inflammation, as is usually believed, but a peculiar condition of the capillaries that favours the escape of serum. This exudation of serum occurs not only in the glomeruli of the kidneys, but also in the lungs; so that animals poisoned with cantharidin die of suffocation, in spite of artificial respiration. His hypothesis is that the irritability of the capillaries varies in different parts of the organism, and that exudation occurs more easily through irritated capillaries; and he believes that there is a certain dose of cantharides, lying between that which is inactive in health and that which is toxic in health, which will act on inflamed capillaries and cause exudation of serum from them alone, while the capillaries of healthy tissues are unaffected. Serum thus exuded may have a therapeutic value—(a) by restoring badly nourished cells to their normal condition, and (b) through the anti-bacterial influence which Buchner's observations have shown serum to possess. Further, if cantharidin has this power of causing increased local exudation of serum, it may thus concentrate at the diseased spot another drug used with it, the additional serum exuded through its influence carrying into the affected tissue a correspondingly larger amount of the associated remedy. Liebreich's observations were made on patients at the Augusta Hospital; the usual dose was one to two decimilligrammes of cantharidinate of potash, the maximum being six decimilligrammes—injected subcutaneously, not oftener than every other day. No local reaction was produced, but in two men there was some urinary irritation, and in a woman a trace of blood in the urine; all were treated as out-patients, and, apart from the above, no uncomfortable symptoms were produced. In using this drug, the effect on the kidneys must be watched; and if organic renal disease exists,



it is contra-indicated. The cases selected were chiefly laryngeal, and were under the care of observers who supplied the clinical details in the discussion that followed this paper. (*See Section on Diseases of Throat*, p. 441, § 22.)

Prof. Tchausoff and Dr. Elsenberg (*Brit. Med. Journal*, Suppl., Aug. 1, 1891) have tried Liebreich's treatment in four cases of pulmonary phthisis, in one of which even minute doses of the cantharidinate caused albuminuria. In none of the patients was the slightest improvement seen.

Prof. Luebmoff (*ibid.*, Aug. 15, 1891) gives the result of the necropsy in two cases of phthisis: in one, 15 injections of cantharidin had been given in 35 days, and in the other 21 in 2½ months. In both the lungs, spleen, liver, and kidneys were studded with enormous masses of tubercle of the usual appearance, while in one intestinal ulcers were present. The bacilli showed no deviation from what is generally observed. In both instances unmistakable acute glomerulo-nephritis existed, and in one the urinary tubules contained hyaline casts. In other words, the cantharidin treatment may give rise to serious lesions of the kidney.

Prof. Cornil (*Journal des Connaiss. Méd.*, April 16, 1891) has tried this treatment in seven patients with laryngo-pulmonary tuberculosis. The drug was given every day or on alternate days, each patient receiving from six to ten injections. In one case the treatment had to be given up on account of the appearance of blood and albumen in the urine, which speedily disappeared when the injections were discontinued. No improvement whatever took place either in the laryngeal lesions or in the general symptoms, and the *post mortem* examination in one case clearly showed that the local lesions had not been in any way favourably influenced. Cornil believes that the prolonged use of the remedy, even in small doses, may produce serious lesions of the kidney.

#### **17. Injection of goat's blood in tuberculosis.**

Dr. Bernheim (*Sem. Méd.*, May 16, 1891, in *Brit. Med. Journal*, Suppl., June 13, 1891) read a paper at a meeting of the Paris *Société de Thérapeutique* in his own name and that of MM. Gardy and Lepelletier, on the therapeutic effects of the transfusion of goat's blood. From experiments on animals and observations on patients suffering from phthisis and chlorosis, the following conclusions were drawn:—The transfusion of goat's blood was in no way dangerous if it was performed with antiseptic precautions; several tuberculous subjects were so far improved that they might be looked upon as cured; and the method might possibly be applicable in other diseases, such as chlorosis and obstinate hæmorrhage.



**MM. Bertin and Picq** (*Gaz. Méd. de Nantes*, April 12, 1891, in *Brit. Med. Journal*, Suppl., June 20th, 1891) report cases in which good results were obtained from the hypodermic injection of goat's blood in tuberculosis. Of seventeen cases of internal tuberculosis, great improvement followed in eleven. Temperature fell, night-sweats and expectoration ceased or markedly diminished, physical signs cleared up, appetite was recovered, and weight increased. In two cases the injections caused abscesses; in one complicated with lupus, the latter was much improved, but nothing is said as to the effect on the lungs. Two patients died, but in these the disease was far advanced before the treatment was begun. In one of the latter a careful dissection showed no trace of the blood at the site of injection, indicating that the whole had been absorbed. The goat's blood was injected with a Pravaz's syringe into the gluteal region. The usual amount injected was 15 grammes, and the average interval between the injections was a fortnight.

#### **18. Injections of dog's serum in tuberculosis.**

**M. Feulard** (*Sem. Méd.*, July 15, 1891) gives an account of observations made in Prof. Fournier's clinic on the therapeutic effects of dog's serum. Richet and Héricourt have shown that serum has no specific effect upon tuberculosis, but that it acts as a powerful general tonic. The cases treated were mostly suffering from lupus. In all there was marked gain of weight, and in three the local condition materially improved. The conclusion is drawn that injections of dog's serum are absolutely harmless, and decidedly beneficial in improving the general health in cases of constitutional debility, and especially in tuberculosis.

**Prof. Semmola** (*Brit. Med. Journal*, Suppl., Aug. 22, 1891) communicated to the Royal Medico-Chirurgical Society of Naples his results from the injection of dog's serum in phthisis. He chose dog's rather than goat's blood, because the dog is absolutely insusceptible to phthisis, which the goat is not. Ten cases were treated; in four the disease was in an advanced stage. One to two cubic centimètres of serum were injected daily. No unpleasant effects were noted, beyond slight urticaria in several cases. In two cases with extensive excavation, no benefit followed; nor did any improvement take place in a third, in which pyrexia was marked although the lesions were not very severe. In the seven other cases the results were very encouraging. The course of the disease was absolutely modified, fever subsiding in most cases, and weight increasing in all. In three the physical signs almost entirely disappeared, the sputum diminished, and the bacilli became very much fewer—only two, or sometimes none,

being found in the field, instead of twenty or more. In all the patients there was an increase of respiratory capacity and of the amount of hæmoglobin. Prof. Semmola considers the remedy worth testing "on a vast scale."

#### **19. Brown-Séquard's fluid in tuberculosis.**

Dr. D. Uspenski, in a lecture before the Russian Society of Public Hygiene (*Brit. Med. Journal*, Suppl., Jan. 10, 1891), stated that he had tried this "emulsion" in eighteen patients in all stages of tuberculosis. Two acute cases had been quite given up. In one, a lad of 18, in whom all other measures had failed, the appetite and general condition were greatly improved after three injections, and after six the patient was able to leave his bed and walk about the room. Under continued treatment strength and weight increased, temperature gradually fell, night-sweats ceased, and the patient could take a long walk. Fifteen injections were given between the beginning of May and June 15th; the treatment was then stopped, and the patient continued to gain strength and weight through the summer—the increase in weight being from 122½ to 148½ lbs. The lung-mischief came to a standstill. In another man, aged 28, fever and profuse sweating were associated with bacillary phthisis of both apices. After the sixth injection appetite improved, after the twelfth the patient was able to leave his bed, and after the eighteenth the temperature became normal. There was, however, no increase in weight, and the lung-condition was not improved. In chronic cases the injections act more rapidly; in twelve such, marked general improvement, with reduction of fever and lessening of night-sweats, occurred after from two to four injections. Nine, or at most twelve, injections usually suffice. The bacilli do not disappear entirely, but diminish in proportion to the extent to which the diseased process recedes. The author considers that Brown-Séquard's fluid has a markedly beneficial effect on the general health in all cases of phthisis.

#### **20. Hypodermic injections of guaiacol and iodoform in phthisis.**

Prof. Picot (*Sem. Méd.*, March 4, 1891) uses in the treatment of phthisis a solution of guaiacol and iodoform in sterilised olive oil and vaseline. Each cubic centimètre of the fluid contains one centigramme of iodoform and five of guaiacol, and the dose was increased from one to three cubic centimètres. The injections were made in the supraspinous fossæ, and no local trouble was met with. The presence of iodide of potassium in the urine, and also in one case in the lungs, proved the absorption of the fluid. Profuse perspiration, most marked about the face and chest,



generally comes on from twenty to thirty minutes after the injection, and is usually followed by a fall of temperature, from  $35^{\circ}$  C to  $1^{\circ}$  C. In some cases continuous treatment caused slight colic and diarrhoea. The urine was not affected. Twenty-five patients in all were treated. Three in whom the disease was far advanced died, but even in these some little improvement was noted, especially in the amount of the sputum; and it was noted *post mortem* that in these cases there was no caseous matter or pus in the cavities. In one, tuberculous ulcers in the intestine showed signs of healing. Of the remaining twenty-two cases, the result was remarkably good in eight; and the author sums up the effect of the treatment as follows:—The injections improve the general condition and increase the body-weight, and lessen cough and expectoration. They sometimes dry up cavities and favour their obliteration. In second-stage cases, cough, expectoration, fever, and night-sweats diminish, and perhaps disappear. The bacilli also lessen in number.

## 21. Intra-tracheal injections in affections of the respiratory organs.

Dr. R. Botey, of Barcelona (*Brit. Med. Journal*, Suppl., Nov. 29 1890), relates experiments as to the possibility of injecting medicinal substances directly into the lower air-passages through the trachea. He points out that, except in the larynx and trachea, the sensibility of the respiratory-mucous membrane is very slight. In experiments on rabbits the front of the trachea was exposed by a vertical incision, the needle of a Pravaz's syringe was inserted into the windpipe, and distilled water was injected in quantities varying from one to four cubic centimètres. When one cubic centimètre was injected drop by drop, so that the water trickled down the side of the trachea, the animal suffered no inconvenience. When twice this amount was introduced, transient symptoms of asphyxia were produced, but quickly yielded to artificial respiration; the animal was killed the following day, and the bronchi and lungs were perfectly normal. An injection of three cubic centimètres gave like results. A rabbit into whose trachea four cubic centimètres were injected died in five minutes; the bronchi and the lower part of the trachea were blocked with blood-clots, the lungs were congested and œdematous, and the bronchial tubes were full of sanguinolent froth. In another animal, one cubic centimètre of distilled water was injected daily for nine days in succession, without any ill effect whatever; and some days later the lungs and the bronchial tubes presented no trace of abnormality. When half a cubic centimètre of a half-per-cent. solution of nitrate of silver was used instead of water, the rabbit showed signs of



uneasiness for about half an hour, and then recovered completely; when it was killed, forty-eight hours afterwards, a few dirty-white patches of partly detached epithelium were seen on the mucous membrane of the trachea and larger bronchi, but the rest of the air-passages were unaffected by the caustic. In another experiment, the injection of half a cubic centimetre of a half-per-cent. solution of bichromate of potash caused little inconvenience and produced no *post mortem* appearances, while an equal quantity of the same solution introduced into the stomach through an œsophageal tube caused acute inflammation of the stomach and the lower end of the gullet. Botey considers that this difference in effect is due to the extreme rapidity with which the respiratory mucous membrane absorbs fluid, in consequence of which the caustic has no time to act locally.

Botey further carried out experiments on himself, by injections through the mouth after cocainisation of the larynx. He first introduced thirteen to fourteen cubic centimètres of distilled water into his trachea by means of a syringe with a curved nozzle long enough to reach below the vocal cords, the injection being made drop by drop with the point of the nozzle held close to the tracheal wall, so as to leave room for the passage of air. The only effect noticed was that the pulse fell from 80 to 76, and the respirations from 21 to 19; this lasted for an hour and a half. There was no cough or feeling of suffocation at the time of injection. On the following day he injected in the same way 25 cubic centimètres; three days later, 37; and finally as much as 50, with no disagreeable effects; and he was confident that he could have injected twice this amount without the slightest risk.

In a case of laryngo-tracheal syphilis, Botey injected 12 cubic centimètres of a one-per-cent. solution of iodide of potassium; owing to incomplete cocainisation, there was some coughing, but two days later 15 cubic centimètres were injected without any discomfort. On seventeen successive occasions, at intervals of 48 hours, he introduced into this patient's trachea 25 cubic centimètres of a one-per-cent. solution of iodide of potassium, to which 1 gramme of bichloride of mercury had been added; so that each injection consisted of 25 cubic centimètres of water, 25 centigrammes of the iodide, and 2½ milligrammes of the bichloride. Under this treatment the disease, which had proved refractory to other measures, "yielded completely, as if by enchantment, in less than five weeks."

Dr. G. Masini, of Genoa, at the Congress of Intern. Medicine at Rome (*Riforma Medica*, Nov. 3, 1890, *ibid.*), said that he had tried intratracheal injections of creasote oil in six patients (five men and one woman) suffering from phthisis. In two cases with

wasting, night-sweats, and other symptoms, but no bacilli in the sputum, the pulmonary symptoms disappeared completely in one, and almost entirely in the other. In two other cases, the patients gained weight, the fever subsided, and expectoration diminished, but the bacilli were still present in the sputum. In one of the two remaining cases the treatment had to be discontinued; in the other there was only slight diminution of expectoration and a little gain in weight. Dr. Masini showed a special syringe which he had devised, by which fluid could be injected into the trachea or into either bronchus.

Dr. Gualdi said that the method had been tried at Rome with solutions of oil of eucalyptus, and menthol.

## **22. The treatment of phthisis by artificial atmospheres under pressure.**

M. Germain Sée (*Bull. de l'Acad. de Méd.*, No. 15, 1891) has treated cases of phthisis by continued inhalation of medicated air under pressure, the drugs used being creasote and eucalyptol. The patients were placed in an enclosed chamber, into which air was forced to an increased pressure of about half an atmosphere, after passing through a solution of the drugs. The pressure was increased gradually, and the sittings were prolonged to two, three, or more hours according to the patients' feelings. The treatment was continued daily, and the effect upon the general health was beneficial rather than the reverse, whilst a very marked improvement was noted in the symptoms of the disease. Cases of phthisis in early as well as advanced stages were treated with satisfactory results. In two cases of fetid bronchorrhœa of two years' duration, a complete recovery was brought about in the course of five weeks. The author claims for this method of prolonged inhalation under pressure that the actual absorption of the antiseptic drug is more complete than under ordinary conditions, and approaches more nearly to the point at which it is assumed that morbid organisms may be destroyed; inhalations of creasote at ordinary atmospheric pressure having long since proved insufficient to check the progress of tubercle. The method is harmless in itself, and produces no unpleasant effects. Improvement of appetite, gain of weight, diminution of cough and expectoration, and subsidence of fever, are said to be the most striking of the changes brought about by the treatment.

## **23. Antifebrin in the fever of phthisis.**

Dr. August Favrat (*Deutsch. Archiv. f. klin. Med.*, Heft 6, p. 511) argues in favour of antipyretic treatment in phthisis, as a result of observations on a large number of cases, on the ground that it lessens tissue-waste and increases the patients' comfort.



Most antipyretics are depressing, and antifebrin may cause collapse, cyanosis, and other symptoms. However, the author and Prof. Sahli tried its effect in small repeated doses, which could be stopped at once if there were any unpleasant results. A rapidly acting antipyretic, such as antifebrin, is specially suited for administration in this way. The quantity given was half a grain to a grain and a-half hourly, or, with less marked fever, every two hours, and the temperature could thus be kept nearly normal. It was well borne in all cases; it had a gentle antipyretic effect, accompanied sometimes by sweating; and it never caused much disturbance or any alarming symptoms. A number of cases are quoted in which serious or fatal results have followed the administration of large doses—three grains being considered a large dose.

#### **24. Camphoric acid in the sweating of phthisis.**

Dr. Bohland (*Deutsch. Archiv. f. klin. Med.*, Bd. 47, p. 289) has used this remedy in patients in whom the sweating was pronounced and occurred every night. After camphoric acid had been given for two or three days in succession, the sweating ceased for a few days, or even for a fortnight or more, and in some cases entirely, but only where increase of weight and decrease of cough and fever showed marked general improvement. The drug was given to thirteen patients, on forty-eight separate occasions: in forty the sweating ceased, in eight it did not. The author found that in some patients, who perspired most profusely about 3 a.m., the administration of fifteen grains—and even thirty or forty-five grains—at 9 p.m. postponed the sweating until 5 or 6 a.m., but did not diminish it; but if fifteen grains were given about 2 a.m. the sweating was satisfactorily checked. In most cases fifteen grains were given at 9 or 10 p.m., and sometimes the dose was increased to thirty or forty-five grains. A single dose at night is more effectual than a number of smaller doses given through the day; and the best time for its administration is two to four hours before the time at which the sweating usually commences. No vomiting or other bad results were ever seen; there is no fall of temperature, and no specific effect upon the disease. The patients sleep much better, but only on account of the stoppage of the sweating. Camphorate of sodium, which is more soluble and has a neutral reaction, has a similar effect. In excessive sweating in non-tuberculous cases these remedies are by no means reliable, and frequently fail. Bohland is of opinion that camphoric acid has no specific action on the disease, but acts by depressing the sweat-centres and the secretory nerves. It is a powerful antifermentative and germicide, and acted well in two cases of



tubercular diarrhœa which had resisted other treatment. Observations on the excretion of camphoric acid showed that if the drug was taken early in the morning before food, excretion began in two hours and was finished in five; while if it was taken after supper, excretion began in about six hours and ended in about twelve. Only a portion of the amount administered could be recovered, the remainder either forming insoluble compounds in the bowel or being excreted by other channels, or possibly becoming oxidised in the body.

**Prof. Combemale** (*Bull. Gén. de Thérap.*, Jan. 15, 1891) also advocates the use of camphoric acid in the sweating of phthisis. He gave it in five cases of pulmonary phthisis and one of pulmonary syphilis; and he concludes that the remedy may entirely suppress or greatly lessen sweating, and is rarely without effect. It is best given in a thirty-grain dose about 7 p.m. It has no unpleasant effects. Camphoric acid occurs in colourless crystals, with an acid reaction and a bitter taste; sparingly soluble in water, but freely in alcohol; it is, thus best given in wafers or in alcoholic solutions:

#### **25. Tellurate of sodium in the sweating of phthisis.**

**Prof. Combemale** (*Bull. Gén. de Thérap.*, January 15, 1891) has shown this substance in eleven cases, in doses up to nearly a grain daily (Neusser, who first introduced it as a remedy, gave from one-third to two-thirds of a grain, in pill, once a day). He concludes that it is a powerful anti-sudorific, but that it may cause digestive troubles, and especially imparts to the breath a strong and very persistent smell of garlic.

#### **26. The influence of acute febrile diseases on the course of chronic phthisis.**

**Dr. A. Chelmowski** (*Deutsch. med. Woch.*, No. 14, 1891) records a case in which erysipelas was followed at first by increased activity of the tubercular mischief, and afterwards by apparent recovery. A woman, aged 38, with chronic bacillary phthisis of the right apex and extensive tubercular infiltration and ulceration of the mouth and pharynx, was attacked by erysipelas with marked fever. At first the symptoms of lung disease definitely increased; but when the erysipelas subsided the tubercular infiltration in the mouth gradually disappeared, and the ulcers took on a more healthy character and ultimately healed. Bacilli disappeared from the sputum, the evidence of lung-mischief diminished, and in about six weeks the patient went out apparently well. The author discusses the association of high temperature with arrest of syphilis and lupus, and occasionally of tubercle, and quotes an instance in which a medical

man lost all symptoms of tuberculosis after an attack of typhoid fever. He quotes authorities in support of the view that pyrexia in tuberculosis is the result of the attempted destruction of the tuberculous poison in the blood, and is of opinion that high fever due to outside causes such as typhoid fever or erysipelas may, by its direct effect upon the virus of the disease, cause diminution or even cessation of tuberculosis.

Dr. A. G. Lawrence (*Brit. Med. Journal*, 1891, i., 199) reports two cases in the last stage of pulmonary phthisis, with large cavities and great emaciation. Both patients were attacked with virulent small-pox, with very high temperature. Both recovered, and in both the pulmonary symptoms at once disappeared; the patients laid on flesh, and are at the present time "the living images of health." The hypotheses are suggested that the small-pox bacilli may have ousted the tubercle bacilli, or that the phagocytes were stimulated to increased activity and destroyed them, or that the temperature *per se* was fatal to them. If the last theory is correct, would it be possible to produce by treatment such a temperature as would destroy the bacilli?

Dr. Markham Skerrett (*ibid.*, 318) quotes the *Year-Book* for 1891 (p. 52, § 34) to show the failure of the hot-air treatment of phthisis, as it is impossible to materially raise the temperature of the lung by artificial means; and further draws attention to the high range of normal temperature ( $102.5^{\circ}$  to  $108^{\circ}$  F.) in rabbits, guinea-pigs, pigeons, and fowls, which are very susceptible to tuberculosis.

Dr. A. Eddowes (*ibid.*) records a case of recovery from phthisis after acute rheumatism; and Surgeon-Major W. H. McNamara (*ibid.*) narrates a similar instance in which a man with most extensive suppurating tubercular disease of the cervical glands had a severe attack of erysipelas, and in a few weeks got rid of all his former trouble.

### 27. The open treatment of pulmonary cavities.

Professor Caselli (*Brit. Med. Journal*, Suppl., Mar. 21, 1891) has operated upon two cases. A man, aged 31, had a cavity in the left lung, at the level of the second intercostal space. On resection of 8 centimètres of the second rib, the pleura was found to be firmly adherent. The cavity was struck by puncture with an exploring syringe, and an opening 5 centimètres long was made into it with a Paquelin's cautery, the wound in the lung being 7 millimètres deep. There was no bleeding. Caseous material and sero-purulent fluid—both containing numerous bacilli—were cleared out of the cavity, which was found to measure  $9\frac{1}{4}$  centimètres vertically, and 6 horizontally. After



careful disinfection, the edges of the wound in the lung were stitched with nine silk sutures to the wound in the chest-wall, the cavity was stuffed with gauze, and a cotton-wool dressing was applied. For the first twenty-four hours abundant expectoration of pus and blood occurred, after which there was no more hæmorrhage. There was a moderate sero-purulent discharge from the wound, which was dressed twice a-day. The temperature never exceeded  $38.1^{\circ}\text{C}$ . Had no adhesions existed, the author would have touched the pleura with the cautery before stitching it to the chest-wall, in order to secure firm adhesion.

The second patient was a woman, aged 30, with a cavity at the base of the left lung extending from the sixth to the ninth rib. A piece of the ninth rib,  $8\frac{1}{2}$  centimètres long, was resected; the pleural cavity, which was not obliterated, contained 100 cubic centimètres of sero-fibrinous fluid. The needle of the syringe was then pushed obliquely upwards through the lung for 5 millimètres, when a cavity was found containing dense pus mixed with caseous matter; this was freely opened with the cautery, and completely emptied, partly by cough and partly by irrigation with a 2 per cent. solution of boric acid; it measured 10 centimètres by 4. The two layers of the pleura were stitched together with catgut, and the cavity was stuffed with gauze, and the wound dressed as in the previous case. When the dressing was changed next day, the pneumothorax had disappeared, and the cavity was discharging freely; it was again washed out with boric acid, and a large drainage-tube was introduced. The temperature, which had been  $39.5^{\circ}\text{C}$ ., fell to  $38.7^{\circ}\text{C}$ . Both patients did well, but the ultimate result of the operations is not given.

## 28. Resection of lung in incipient tuberculosis.

M. Tuffier (*Sem. Méd.*, May 16, 1891) advocates resection of the lung for the removal of strictly limited early lesions. Having first satisfied himself by experiments on animals that portions of lung might be successfully removed, on Nov. 30, 1890, he performed an operation for radical cure of a spontaneous hernia of the lung, returning the lung, and sewing up the wound; and the patient was well by the seventh day. On May 5 M. Tuffier resected the lung of a man aged 25, with incipient phthisis apparently limited to the right apex. He made an incision along the second intercostal space, and exposed the pleura. In order to draw the apex more easily through the small incision, he produced an "extra pleural pneumothorax" by separating the parietal pleura from the chest-wall around the apex; the membrane was slightly torn, but the hole was stopped with the finger, and then with gauze, so that but little air entered the pleura. The apex



of the lung was then seized with special forceps, and drawn out. The area of consolidation, which was about the size of a large hazel-nut, firm in the centre, and slightly granular at the circumference, could be distinctly felt and defined. A silk ligature was then tied tightly round the protruding lung, 5 centimètres from the apex and 2 beyond the area of consolidation; the lung was cut off, and the pedicle accurately sewn to the periosteum of the internal surface of the second rib, so as to avoid the production of pneumothorax. The divided muscles, layer by layer, were then carefully sutured with catgut, Florence hair sutures were used for the skin-wound, and an iodoform wool dressing was applied. The patient was under chloroform for thirty-five minutes, and there was no disturbance whatever of the breathing or the circulation. An excellent recovery followed, without fever, cough, or any sign of reaction, local or general. The dressing was first changed on the sixth day; and, beyond slight weakness of breath-sounds over the whole lung, no abnormality whatever could be detected. The dressing was left off on the ninth day, when the patient was well enough to be exhibited. Professor Cornil reported that the piece of lung removed contained a tuberculous nodule of the size of a hazel-nut, with disseminated tubercles around; there was no softening; bacilli were present. Tuffier says that the patient had a localised lesion, from which the operation has freed him, but that it remains to be proved whether medical treatment will safeguard him against further attack. (*See also Year-Book for 1891, p. 64, § 51.*)

[The difficulty in the way of the adoption of resection of lung for tuberculosis must always be the impossibility of determining absolutely by physical signs the exact extent and distribution of the disease. M. Tuffier lays upon medicine the responsibility of protecting his patient against "further attack." It will be open to the physician to require of M. Tuffier proof that such "further attack" is not due to the development of tubercle actually in existence at the time of the operation.]

### III.—DISEASES OF THE PLEURA.

#### 29. Antipyrin in pleuritic effusion.

M. Clément (*Lyon Méd.*, May 10, 1891; *Brit. Med. Journal*, Suppl., May 16), treats pleuritic effusion—whether febrile or afebrile—with antipyrin alone. In all cases the dulness rapidly diminished; in some it disappeared after forty eight hours' treatment, and in two or three even in twenty-four hours. In no case was the effect delayed beyond four days. The usual dose

was one gramme every four hours; and to prevent relapse the drug was continued for some days after absorption of the fluid, the dose being reduced to four grammes in the day instead of six. Both the acute and the latent forms of pleurisy yielded rapidly to treatment, the latter rather more quickly than the former; but when pus or blood was present antipyrin failed to produce absorption. Diuresis was not caused, even when resolution was almost immediate; in some cases no sweating was observed, in others it followed the resolution of the effusion. The author believes that the beneficial effect of antipyrin in pleurisy is due to its specific influence on nearly all inflammatory processes.

### **30. The course and treatment of purulent pleuritic effusions.**

Professor M. Kiener (*Revue de Méd.*, November, 1890) discusses the natural course and the treatment of pleuritic effusions, and especially those of the fibrino-purulent and wholly purulent forms respectively.

The fibrino-purulent effusions are produced by the pneumococcus, the streptococcus pyogenes, or the tubercle bacillus. The wholly purulent effusions are set up by the staphylococcus aureus or albus, either alone or associated with other forms of micro-organisms, and especially with the tubercle bacillus. The purely fibrinogenous process of inflammation may be independent of any micro-organisms; but the subsequent changes which the effused fibrinous material may undergo are largely influenced by them. Dead organised products may undergo softening, probably by the action of some ferment they contain, and may thus become absorbed; cultures made with fluids undergoing this process may cause liquefaction of gelatine without the smallest trace of any bacterial growth. The occurrence of fibrino-purulent effusions, following septic forms of pneumonia and inflammation of other organs, has been shown to be closely associated with influenza and the presence of the pneumococcus; and cases are quoted in which pleurotomy and antiseptic cleansing have effected a cure. Kiener points out that where purulent effusion follows upon infectious disease it tends to localise itself, and the organisms which flourish within it do not penetrate deeply into surrounding tissues; but if it remains undisturbed, the conditions become those of a local abscess, and the system is gradually poisoned by the ptomaines produced by the micro-organisms. Simple aspiration effects a cure in some cases, but if pus re-accumulates the chest should be freely opened. The operation should not be done until the fluid in the pleura is entirely converted into pus. Antiseptic injections should be avoided if possible, but neutral



solutions may sometimes be needed to wash away accidental accumulations, such as blood-clot. The wholly purulent effusions associated with the staphylococcus aureus and albus are by no means so regular in their course as the effusions following pneumonia. In none of the cases during the recent epidemic of influenza could the staphylococcus aureus be found in the fluids of any of the serous cavities, unless these directly communicated with the external air; but in all cases the diplococcus pneumoniae and the streptococcus pyogenes were discovered, whether any such communication existed or not. The pathological action of staphylococcus differs from that of pneumococcus and streptococcus; the former gives rise at once to the formation of pus, while the other two are fibrinogenous, and call forth a solid exudation which liquefies subsequently. Staphylococcus acts as a peptonising ferment, and not as a cause of coagulation. Its virulence is variable, but it is capable of retaining it for long periods; and it grows luxuriantly in artificial cultivations, whilst the other forms do not. Hence it is easy to understand why effusions set up by staphylococcus run such an irregular course, and are amenable only to antiseptic treatment.

### **31. Oedema of lung following thoracocentesis.**

Dr. F. Kovács (*Wien. klin. Woch.*, No. 3, 1891) reports the following case. A woman aged 58 came under observation with feeble heart, dropsy of surface, of peritoneum, and of both pleuræ, and albumen in the urine. Eight hundred cubic centimètres of fluid were withdrawn from the left pleura, with immediate relief to the dyspnœa; but there rapidly supervened severe cough, with expectoration of large quantities of serous fluid, and extreme dyspnœa and collapse. On free stimulation the patient rallied; but cough continued, and large quantities of blood-stained highly albuminous fluid were expectorated, while the albumen in the urine increased. Three days afterwards Curschmann's spirals were found in the sputum. The patient gradually recovered from the acute symptoms. The possible cause of the sudden oedema of lung is discussed—whether wound of lung, deep-seated pneumonia, as perhaps indicated by the presence of the spirals, or cardiac weakness from sudden removal of the fluid from the pleura.



# DISEASES OF THE NERVOUS SYSTEM, INCLUDING INSANITY.

By JAMES ROSS, M.D., LL.D., F.R.C.P.,

*Physician to the Manchester Royal Infirmary and to the Manchester Royal Lunatic Hospital,  
Cheadle. Joint Professor of Medicine in the Owens College and Victoria University;*

AND

ERNEST S. REYNOLDS, M.D. *Lond.*, M.R.C.P.,

*Visiting Physician to the Manchester Workhouse Infirmary and Lunatic Wards, and to  
the Ancoats Hospital, Manchester.*

THE past year has not been marked by any great and special advance in the treatment of nervous disease. Further trials have been made with the new hypnotics with varying results. The rage for the treatment of certain chronic nervous disorders by suspension has considerably abated, and we can now examine more calmly the rationale of the method, and the exact benefits conferred by it. The pathology of tetanus has been much elucidated, and a large number of cases have been reported. Much attention has been given to the treatment of drug craving—a malady which, unfortunately, seems to be increasing. This year a short article on the treatment of mental disorders has been added.

One book relating to nervous diseases taken as a whole has been published. This is "The Treatment of Diseases of the Nervous System," by C. W. Suckling, M.D., M.R.C.P., London, H. K. Lewis. This work is arranged as a dictionary in alphabetical order, and is a supplement to the same author's work on the diagnosis of nervous disease.

We propose to consider the various subjects of this article under the following heads :—

I.—The Treatment of Insomnia.

II.—The Relief of Pain, including Sciatica and Headache.

III.—The Treatment of Epilepsy, Chorea, and Exophthalmic Goitre.

IV.—The Treatment of Tetanus and Muscular Spasm.

V.—The Suspension Treatment of Chronic Nervous Disorders, and other Methods of Treating Locomotor Ataxia.

- VI.—The Treatment of Neurasthenia and Hysteria.
- VII.—Hypnotism, Massage, and Electricity.
- VIII.—The Treatment of Drug Cravings.
- IX.—The Treatment of Insanity.
- X.—Special Methods of Treatment in Various Diseases.

## I.—THE TREATMENT OF INSOMNIA.

### 1. General observations.

Dehio (*Petersburg Medic. Wochenschr.*, No. 33, 1890) gives the results of his trial of various hypnotics in the Dorpat clinic for nervous and mental diseases. He found that *hypnone* in doses of 10 to 15 minims was useless, and that *methylal* and *chloralamide* were not of much service in the few cases to which they were given. *Paraldehyde* was most reliable, and in severe cases 75 to 90 minims were given, followed by another dose of 40 to 60 minims, and a good night's rest resulted. As a rule it acted well, but in other cases only slightly, and in some tolerance of the drug was soon established. Although paraldehyde does not influence the heart or respiration, it may cause diarrhœa. It should be quite pure and not redden litmus paper. If exposed to light or put into badly-stoppered bottles it soon becomes acid. After prolonged use the following symptoms may appear:—Loss of appetite, grey colouration of the face, dryness of the skin and loss of body weight, and the drug ceases to have a soporific effect. *Amylene hydrate* was found to be of some use; moreover, it did not affect digestion, but occasionally produced headache and depression. *Urethane* in doses of 45 to 90 grains was useful in mild insomnia. *Sulphonal* in doses of 15 to 60 grains was not so good as paraldehyde or amylene hydrate. The after-effects were drowsiness, weakness, and ataxia. In mania and general paralysis of the insane it only acted very slightly. In many cases of excessive motor disturbance, as in mania and delirium tremens, all hypnotics were practically useless, except hydrochlorate of hyosine ( $\frac{1}{10}$  grain), which was then the best remedy.

Folsom (*Boston Medic. and Surgic. Journal*, July 10, 1890), in a paper on the various hypnotics, relates very similar results. He says the *bromides* diminish the reflex excitability of the medulla, and are vaso-motor excitants. To get a hypnotic effect he thinks they should be given in divided doses through the day and evening; and their debilitating effect should be met by giving also iron and quinine. *Paraldehyde* is a good hypnotic, but has an unpleasant acrid taste, and causes gastro-intestinal disturbances. Though no craving is produced by repeated doses, yet



such bad symptoms as tremor, confusion, impaired memory, and diminished intelligence, may ensue. *Amylene hydrate* is about as serviceable a hypnotic as paraldehyde, and has a less objectionable taste, and fewer bad after-effects. *Urethane* has the advantage that, being very soluble, it may be given subcutaneously, but its action is uncertain. *Hydrobromate of hyoscyne* should only be used in mania, delirium tremens, and insomnia with great agitation; rarely, however, it does not quiet the patient, but increases the restlessness. *Chloralamide* was found to be less depressing than chloral, and with less disagreeable after-effects. *Sulphonal* was less useful than the last, was slow in action, and at times accumulated in the system; the after-effects, such as ataxia, tremor, and mental apathy were very marked. In 5-grain doses repeated two or three times, refreshing and natural sleep was often produced. *Phenacetin* given in wafers, compressed tablets, as a powder, or with brandy, was efficacious in insomnia from overwork or nervous irritation, in febrile states, or from headache, the dose being 5 to 10 grains, repeated if necessary. In insomnia from intense neuralgia the dose should be at least 15 grains, provided that the patient can tolerate so large an amount.

## 2. Action of some recent hypnotics on digestion.

Gordon (*Brit. Med. Journal*, vol. ii., p. 115, 1891) has made experiments in order to test the action of chloralamide, paraldehyde, urethane, and sulphonal on digestion, and has obtained the following results:—*Chloralamide*, in large doses, retards the digestion of fibrin, but small doses up to 3 grains have no effect; putrefaction is not retarded by either large or small doses. *Paraldehyde*, in large doses, considerably accelerated digestion, and in small doses accelerated it in a less degree; putrefaction was prevented by large, lessened by small doses. *Urethane*, in strong solutions containing 4 grains, delayed digestion, in weak solutions of  $\frac{1}{30}$  grain had no effect; putrefaction was not retarded. *Sulphonal*, in strong saturated solutions, delayed digestion, weak solutions saturated  $\frac{1}{12}$  had no effect, but saturated  $\frac{1}{4}$  delayed digestion; putrefaction was not affected.

## 3. Chloral.

Mayet (*Lyon Médical*, June 7, 1891) speaks of the intravenous injection of chloral as serviceable in the following cases:—Rabies, tetanus, uræmia with active delirium or convulsions, puerperal eclampsia, delirium tremens, strychnine poisoning, and exceptional cases of great pain, uncontrolled by morphia. Thus administered it is four times as strong as when given by the mouth. The concentration of the solution should not exceed 1 in 30, for with stronger solutions there is a risk of injecting the drug too rapidly,



of deleterious action on the corpuscles, or of producing thrombi. Hæmoglobinuria was never produced, but albuminuria followed in one case. Cardiac troubles might ensue from a too rapid injection, and if so they must be combatted by electricity, artificial respiration, etc. A glass syringe, which is large enough to hold the whole dose, and capable of being easily rendered aseptic, should be employed for the injection. The piston should not be packed with leather, but with elder pith or asbestos; the whole syringe must be sterilised by boiling before being used, the liquid injected being previously heated to the body temperature; the vein should not be exposed or dissected out.

#### 4. Chloralamide.

Malceowsky (*Therap. Gazette of Philadelphia*, Dec. 15, 1890, and *Les Nouveaux Remèdes*, Oct. 24, 1890), in his St. Petersburg graduation thesis, has studied the pharmacology of this drug. He used a 5 per cent. watery solution, and administered it subcutaneously and by the mouth. In cold-blooded animals, after  $\frac{1}{3}$  to  $\frac{2}{3}$  grain, there was:—(1) Immobility and disturbed co-ordination, attributed to cerebral action; (2) diminution and abolition of the reflexes, attributable to inaction on the spinal cord; (3) slowing and, finally, arrest of respiration, probably of centric origin, as both the respiratory nerves and muscles retained their normal excitability; (4) slowing and arrest of the heart from stimulation of the peripheric inhibitory apparatus; (5) in last stage, paralysis of the motor apparatus and cardiac muscle. In warm-blooded animals (dogs and rabbits) he found:—(1) sleep from action on the brain; (2) diminished excitability of brain and cord; (3) loss of co-ordination by depressing the central nervous system; (4) lessened reflex action; (5) lowered blood pressure by paralysis of vaso-motor centre; (6) reduction of pulse and temperature; (7) various forms of functional disturbances in gastro-intestinal centres (of dog).

Umpfenbach (*Therap. Monatsch.*, Oct., 1890) has employed chloralamide in the lunatic asylum at Andernach. He gave it in fifty-five cases, dissolved in a weak solution of alcohol and syrup, beginning with 60 grain doses at night, rising gradually to 90 grains per dose, and per day. In paranoia, general paralysis of the insane, and the excitement of epileptics it usually acted well; while in general restlessness and in melancholia its hypnotic effects were nil or very slight. In a very few cases the sleep was disturbed by dreams; in others, gastric irritation and purgation were observed, with occasionally excitement and skin eruptions. As a rule, however, no unpleasant effects ensued, and the drug could be taken for months without affecting the heart, the blood

vessels, or urogenital system. He concludes that chloralamide is a useful enough hypnotic, but that its action is somewhat uncertain, and has no advantage over chloral hydrate.

Gordon (*Brit. Med. Journal*, 1891, vol. i., p. 1060) has made elaborate experiments with chloralamide. He finds that the reflex irritability of the spinal cord is diminished, but peripheral sensation is not reduced. There is a hypnotic action when given to frogs, with slowed respiratory and cardiac actions, abolition of reflexes, and subsequent recovery. The blood pressure is slowly reduced with large doses, the pulse rate is not affected, but respiration is reduced and finally abolished; the conductivity of the motor nerves and the irritability of muscular fibres are destroyed. The excretion of urea is increased by small doses of 5 to 8 grains, but diminished by large doses of 30 to 45 grains; the excretion of phosphates is diminished by both large and small doses; the excretion of the fluids of the urine is not constantly affected by small doses, but is diminished by larger doses; the colour, reaction and odour of the urine are not affected; albuminuria was occasionally detected. It has no action on the skin, temperature, or digestion. Hypnotic action is induced in healthy subjects with doses of 20 grains and upwards. In painless insomnia the results obtained were highly successful, with moderate pain fairly successful, and with severe pain unsuccessful. Its analgesic action is feeble, but its hypnotic effect is usually seen within half an hour. The sleep produced is tranquil, pleasant, and natural, and the awakening is free from confusion or depression. There is no deferred action, and no craving for the drug was noticed; the point of tolerance is not easily reached. The most reliable doses are from 30 to 45 grains. Giddiness, inco-ordination, and headache sometimes followed its administration. In senile insomnia, pulmonary diseases and hysteria, the results were highly satisfactory.

Main (*Brit. Med. Journal*, May 23, 1891, p. 1123) gave a dose of 30 grains to a patient aged eighty, suffering from granular kidneys and insomnia. This was followed by sound and refreshing sleep; but each morning after the drug had been given there was profuse epistaxis with much congestion of the face and neck. He thinks there is some danger in the drug if the kidneys are so damaged that free excretion is prevented.

##### 5. Duboisine sulphate.

Ostermayer (*Semaine Méd.*, Dec. 31, 1890) has given this drug hypodermically in mental diseases. He finds it is a powerful sedative and hypnotic, its action being somewhat analogous to that of hyoscine. He injected  $\frac{1}{60}$  grain, and in ten minutes the sedative action was noticed, sleep following in twenty to thirty



minutes. If there is great excitement, then  $\frac{1}{30}$  to  $\frac{1}{20}$  grain is needed. He thinks it is safer than hyoscine in cardiac disease.

#### 6. Hyoscine.

Malfilatre and Lemoine (*Gaz. Médic. de Paris*, 1891) report the effects of hyoscine on sixty-two patients, chiefly suffering from mania. The results were very favourable; in the great majority of cases they found that they had an immediate and continued hypnotic effect from very small or moderate doses administered hypodermically, and in only a very few were larger doses required; and also that there did not appear to be such uncomfortable lasting after-effects, as occurred with other hypnotics. It is an excellent palliative in insomnia with agitation.

#### 7. Hypnal or chloral-antipyrin.

Soutakis (*Thèse de Paris*, No. 234, 1890) has made researches on monochloral antipyrin (hypnal) and bichloral-antipyrin. They both act like chloral, but are less depressing. In animals, in doses of 2 to 25 grams. per kilo. of body weight, intravenous injections produce sleep, but anaesthesia is only produced by larger doses. The toxic dose is 1 gm. per kilo., death being caused by failure, first of respiration, and then of the heart. The monochloral-antipyrin is the more toxic. In man doses of 30 to 45 grains are hypnotic like chloral, but should not be given in heart disease, except in aortic disease with good compensation. They do not relieve dyspnoea, but, in some cases, act as diuretics. They irritate the gastro-intestinal tract like chloral, and are more depressing than sulphonal.

[The above observations are also attributed to ley (*Bulletin Médic.*, June 25, 1890), and to Germain Sée (*Therap. Gaz.*, Feb., 1891).]

Zessarsky (*Thèse de Paris*, No. 310, 1890) has examined monochloral-antipyrin. He says that it has almost no taste, and that it is useful both as a hypnotic and as an analgesic, and that it is a true therapeutic combination. It is particularly useful in insomnia due to pain, but its hypnotic effects are only one-third to one-half those of chloral.

#### 8. Methyal.

Marandon de Montyel (*France Médicale*, 1891, No. 9, p. 130) says methyal can be prescribed without inconvenience in doses of even 12 grammes at once. It is a feeble hypnotic, but it increases the heart beats, raises the arterial tension, and increases and deepens the respirations. It causes polyuria and general sweating, lowers the temperature, but increases the feeling of superficial warmth. It must be given with food, or it causes nausea and vomiting. Tolerance of the drug is rapidly established.



### 9. Somnal or ethyl chloral urethane.

W. Gilman Thompson (*New York Medic. Journal*, Nov. 9, 1890) has made numerous experiments with this drug, and finds that in animals death is caused by affecting the respiration before the heart with congestion of all the abdominal viscera, and that in dogs it slightly increases the blood pressure. He gave it to various cases of insomnia, and concludes that the effects of somnal are much more striking and certain than those of urethane, and far less depressing than those of chloral; that there follows no vertigo or depression as after sulphonal; that its action is usually very prompt, 30 minims in syrup of tolu or whisky being usually easily taken and well borne, and entirely without deleterious effects; 1 drachm is not powerful enough to control delirium tremens, maniacal delirium or insomnia from severe pain; 30 to 40 minims is a safe and reliable dose for ordinary insomnia. It is rapidly eliminated from the body, and may be administered each night for a number of days without any obvious ill-effects. It acts very much like chloral, but is more pleasant to take, and is not so depressing.

Woodbury (*Western Medic. Reporter*) states that somnal acts as a hypnotic, but instead of depressing the system as chloral does, it slightly stimulates the gastric mucous membrane, relieves nausea and pain, improves the appetite, probably increases secretion, and does not cause constipation. The circulation and temperature are not notably depressed after its administration, and it has no disagreeable after-effects.

### 10. Sulph-aldehyde.

This drug is produced by the action of sulphuretted hydrogen on ethylic aldehyde, and occurs in the form of an oleaginous liquid of repulsive odour, solidifying slightly below freezing point. Its analogy to paraldehyde led Lusini (*Therap. Gazette*, Jan. 15, 1891) to test its physiological action by administering it by injection into the peritoneum and stomach of rabbits and dogs. He found that it produced sound and tranquil sleep without any excitement. As it is rather insoluble, some time elapses before it acts. He claims that it is more energetic than paraldehyde. It is eliminated completely by the urine to which it gives its characteristic odour.

### 11. Sulphonal.

J. Madison Taylor (*Philad. Univers. Med. Magaz.*, May, 1890) uses sulphonal as follows:—As a motor depressant it is valuable in small doses of from 5 to 10 grains given two or three times a day after food. As a hypnotic it should be given in the same doses, beginning in the early afternoon at intervals of two hours,

and continued until two hours before bed-time, say at four, six, and eight o'clock. If not effectual then begin at 2 p.m., or add 2 grains to each powder; very rarely will four powders of 10 grains each fail. In the insomnia of typhoid fever when 10 grains do not suffice, three powders of 15 grains will be better. The drug is best given in milk or soup, with or soon after food.

Stewart (*Philad. Med. News*, 1891, vol. i., p. 132) recommends that sulphonal should be given just before the patient retires. [It is much better to give it some little time before bed-time.—*Rep.*] The powder should be well stirred in 6 ounces of boiling water until it is entirely dissolved, and then the solution should be cooled only to a temperature suitable for drinking. The hot solution dilates the gastric vessels, and stimulates rapid absorption before any marked precipitation occurs in the stomach.

Graeme M. Hammond (*Journ. Ment. and Nerv. Dis.*, 1891, p. 440) says sulphonal is a hypnotic pure and simple. In certain forms of insanity where mental activity produces insomnia, it is far preferable to other narcotics. The dose varies; in mild cases 15 to 20 grains are enough, but in other cases 50 to 60 grains are necessary, especially if the insomnia is due to some organic disease such as epilepsy or cerebral tumour. Some patients show a marked intolerance to the drug, as where 15-grain doses have been followed by vertigo, stupor, and marked delirium. To obtain the best effects it should be given as nearly in solution as possible, as in hot water or hot milk; it is not good given with alcohol, as this is a cerebral stimulant. It may be given in soup, tea, or coffee, but if the soup is greasy, then a bitter taste is developed. It is better in powders than in compressed tabloids. It probably does not cure insomnia, but is merely a temporary measure.

Toney (*St. Louis Medic. and Surgic. Journal*, Jan., 1891, p. 27) has employed sulphonal in insane subjects suffering from insomnia. The average dose was 12 grains, sometimes only 5 to 10 grains, sometimes 15 to 25 grains. The averaged time which elapsed before sleep was produced was three hours; the usual time of administration was at 5 p.m.; the average number of hours' sleep was seven. Sleep was more profound in children than in adults. No vomiting or disturbance of gastro-intestinal tract was observed.

Clerval (*Thèse de Paris*, No. 296, 1890) says sulphonal produces in man hypnotic effects, but rarely motor troubles, whereas in the lower animals there are more motor troubles than hypnotic effects; in small animals it causes hyperexcitability. It has no action on the heart, circulation, digestion, skin, or temperature;



its absorption is slow. It is a useful hypnotic in simple insomnia, old age, and the insane; no cumulative effects were noticed, and no tolerance of the drug was set up. When the action is prolonged it may cause cephalalgia, fatigue, and hallucinations.

Roubinovitch (*Le Progrès Médic.*, Feb. 28, 1891) has used sulphonal successfully in the insane. He gives 12 to 45 grains at the commencement of the second meal with as much warm liquid (soup, etc.) as possible. Large doses should not be given on several successive days, and it should be given with caution in inflammatory affections of the meninges or cerebro-spinal axis.

Bresslauer (*Neurolog. Centralbl.*, March 15, 1891) says that while sulphonal is good in some cases, yet the bad effects of the drug are so apt to come on and prove fatal when least expected that it must be used very cautiously, and if any symptoms due to its use appear, it should be immediately stopped. He gave it to seventy-seven insane patients, and of these, seven showed serious symptoms in five of whom death resulted. The patients had been taking the drug for some time in good doses, when all at once bad symptoms appeared. These were constipation, mental apathy, scanty and dark-coloured urine, thirst, slow, or in some cases rapid and feeble pulse, bluish spots on the legs resembling purpura, ataxia, and numbness, a difference of temperature in the upper and lower parts of the body, and finally heart failure and œdema of the lungs.

Maerle (*Thèse de Paris*, No. 364, 1890) says sulphonal is not so well borne as chloral, and that if the latter has failed to produce sleep, the former rarely succeeds. He thinks that the good effects of the drug do not compensate for the bad after-effects, and that it ought to be rejected as a therapeutic agent.

## 12. Uralium or chloral urethane.

Schmitt and Parisot (*Revue Méd. de l'Est.*, 1890, No. 23, p. 728) say that ural has a real but inconstant hypnotic action. The sleep which it produces is calm, but light and intermittent. It is difficult to administer except in an alcoholic solution, causes digestive troubles, and is not so good as chloral or opium. [An alcoholic solution of ural is probably the same as somnal.—*Rep.*]

## II.—THE RELIEF OF PAIN, SCIATICA, AND HEADACHE.

### A.—EXTERNAL APPLICATION.

#### 1. Electricity.

(a) *Electric light as an anodyne.*—Stanislaus Th. von Stein, of Moscow (*Meditzin. Obozrenie.*, No. 12, 1890, p. 1156) records a series of fourteen cases of various painful affections in which he



used the electric light as an anodyne, with "almost magical results." The apparatus used for the purpose consisted of a small-sized (3 to 4 volts) incandescent electric lamp, furnished with a suitable handle and funnel-shaped reflector, varying from 3.5 to 6 centimètres in length and 2 to 3 in diameter. In cases of affection of the head and neck, the illumination of the painful part lasted for ten to fifteen seconds; in other regions of the body, from one to five minutes, or until the patient began to complain of the heat. The anodyne effects are said to be instant, and most striking. In a case of a female with obstinate intercostal neuralgia, a series of illuminations—each of a few seconds' duration—given at a single sitting, caused complete and permanent relief from pain. Intense rheumatic pains in the shoulders, and lumbago, were similarly relieved; a nervous woman with severe pain in foot and ankle was completely cured by two illuminations of five minutes' each. A patient with laryngeal phthisis and excessive cough was illuminated in the larynx and both sides of the neck externally, for ten or fifteen seconds on alternate days, with great reduction in number of the paroxysms of coughing. [From the cases reported, it seems probable that the treatment is more or less a matter of suggestion.—*Rep.*]

(b) *Anodal diffusion*.—*Paterson* (*New York Medic. Record*, Jan. 31, 1891) summarises his experience of the therapeutic value of "anodal diffusion" for the relief of pain. By this is meant the ability of a galvanic current, in flowing from the positive pole to the negative, to seemingly carry substances with it through a membrane or through the skin. His results are:—(1) The electric current alone does not produce anæsthesia at either pole, though the anode has a transitory soothing effect over painful foci. (2) Watery solutions of cocaine, or alcoholic solutions of aconitine or chloroformine, when merely applied to the skin do not produce anæsthesia, except, perhaps, after an indefinitely long period. (3) Solutions of cocaine, aconitine, strychnine, iodide of potassium, tincture of iodine, chloroform, and other substances are diffused through the skin and subcutaneous tissue by the anode, and not by the kathode. (4) The anæsthesia produced by 10 to 20 per cent. solution of cocaine, placed on the anode, is sufficient for small operations, and affords distinct relief for four to eleven hours in cases of severe neuralgia in the superficial nerves. In these methods accurate dosage should be employed, the electrode should be flat, made of platinum or tin, and covered with filter-paper or linen disc, which is soaked with a definite quantity of the solution; or a disc may be first soaked and dried, when it can be made ready for use merely by moistening. The strength of the current should

be regulated by the patient's feelings ; but, as a rule, a current of from 5 to 20 milliampères, used for five to fifteen minutes, is necessary ; the stronger the current, the shorter the duration of application. To produce local anæsthesia in neuralgia, superficial pains, and cutaneous operations, a 10 to 20 per cent. solution of cocaine was used. Aconitine causes a deep analgesia, but this is accompanied by severe smarting round the edges. Three or four minims of a 1 per cent. solution of helleborine cause a deeper and more lasting anæsthesia than cocaine, without producing any constitutional effects. Both onabaine and strophanthine, in doses of  $\frac{1}{250}$  grain or more, are strong local anæsthetics ; 1 or 2 minims of chloroform bring about deep analgesia in a short time, but this is followed by vesication. A mild solution of carbolic acid may be employed in the same way as a local anæsthetic and analgesic.

Harries (*Lancet*, 1890, vol. ii.) reports similarly. He says that when local anæsthesia is required, cocaine hydrochlorate should be administered by means of cataphoresis (anodal diffusion) instead of hypodermically ; complete anæsthesia is thus produced, and the toxic symptoms of cocaine do not appear. A 10 per cent. solution is used to saturate a flannel-padded positive electrode corresponding in size to the area of the desired anæsthesia ; and a large negative electrode, soaked in common salt solution, is placed on some other part of the body.

## 2. Methyl-chloride spray.

Berezovsky (Supplem. *Brit. Med. Journal*, 1891, vol. ii., p. 36) describes his experiments on dogs of the anæsthetic action of methyl-spray, and finds that a spray of two seconds' duration produces complete anæsthesia for fifteen to twenty seconds, the tissues remaining soft enough to cut. With five seconds' duration a longer anæsthesia is caused, but the tissues are inconveniently hard ; seven seconds' caused local congestion and inflammation ; and twenty seconds', sloughing of tissues down to the muscle. A convenient and harmless two seconds' spray can be made to prolong the anæsthesia to five minutes, by repeatedly spraying at short intervals. Compared with the ether-spray, it produces anæsthesia much more quickly ; it is unflammable, so can be used in cases where the cautery is necessary ; it does not change with exposure to light or air ; does not irritate the mucous membranes even in children ; and is much cheaper than ether, as so little is used.

## 3. Carbon dioxide solution ("Soda-Water").

Voituriez (*Revue de Thérapeutique*, July 15, 1890) has found an extremely simple method of producing local anæsthesia by projecting from a distance of 3 or 4 inches the contents of two or three



syphons of soda-water on to the part to be dealt with. The anæsthesia produced lasts five minutes.

#### B.—INTERNAL ADMINISTRATION.

##### 1. Butyl-chloral.

A. H. Hare, of Philadelphia (*Philad. Med. News*, 1890, vol. ii., p. 213) calls attention to the relative value and safety of butyl-chloral in the treatment of insomnia due to neuralgia. He found that functional insomnia with no known cause yields very well to this drug; but insomnia due to any advanced systemic disease, such as phthisis, is not relieved. Neuralgia of other nerves than the cranial are rarely benefited by butyl-chloral, but it may give relief in such cases by combining it with 10 to 15 minims of tincture of gelsemium. In true migraine with hemianopsia, it is certainly one of the most useful remedies given along with antipyrin and caffeine, cannabis indica, or gelsemium. It may be given in moderate doses, even if heart-disease is present.

##### 2. Cocaine.

Mosso (*Pflüger's Archiv.*, 1890, Hft. 11 and 12, pp. 553-601) gives an exhaustive paper on the action of cocaine. His conclusions are as follows:—(1) Cocaine in 10 per cent. solutions applied to a mixed nerve paralyzes the motor and sensory strands equally. (2) Cocaine given internally does not paralyze the terminations of the sensory nerves as curare does the motor; its action in diminishing the general sensibility is chiefly due to its effect on the cells of the spinal cord. It may, given internally, lessen the sensibility of the nerve sensory-endings, but the amount in the blood is too small to tell this; locally, 2 to 10 per cent. is necessary to produce anæsthesia, and this strength could not be obtained by internal administration except by a lethal dose. (3) Direct application of the solution to the medulla causes paralysis of the nerve-centres. (4) In dogs .5 milligrammes per kilo. had no effect on muscular action, 1 milligramme acted as a muscular stimulant, and 3 milligrammes as a muscular paralyser. (5) In general anæsthesia, its action is like that of chloroform or ether; it acts as a protoplasmic poison, first affecting the psychical function of the brain, then sensation, which disappears first in the extremities, then trunk, and lastly in the cornea. (6) After application the nerves were not injured, and soon became normal. Mosso tried experiments on himself to see its action on muscular power, normal fasting and fatigue. The flexor muscle of the middle finger was used, contraction being induced either voluntarily or by the interrupted current, the finger being made to lift a weight of 2 kilos. When normal, he could stimulate the muscle seven times per minute for



fifteen minutes. He then rested until the fatigue was passed, and took  $1\frac{1}{2}$  grains of cocaine hydrochlorate by the mouth, and now found that the working capacity of the muscle was increased. The same dose injected into an arm diminished the working power of the muscle. Similar experiments showed that its stimulant action is still more marked on muscles which have been previously tired by work and are in a state of fatigue. After fasting forty-two hours he found that the working-power of the muscle was very greatly diminished, but cocaine restored it to more than the normal for voluntary contraction, and to very nearly the normal for electrical contraction. He found also that after hard physical work, with prolonged fasting, small doses of cocaine acted as a speedy restorative; and he thinks it is not only a nerve stimulant, but also a direct muscle stimulant. Also, that it lessened the physiological reaction time, that it increased the amount of air inspired, and contracted the blood-vessels.

Hallopeau (*Académie de Médic. de Paris*, Dec. 2, 1890) mentioned a case in which after  $\frac{1}{4}$  grain of cocaine had been injected into the gums great excitement ensued, which soon passed off, only to be followed, however, by marked cerebral symptoms, such as insomnia, occasional excitement, and depression and inability to perform mental work. This condition lasted four months, from which Hallopeau concludes that as so small a quantity of cocaine could not have remained in the circulation for so long a time, that it is either stored up in the nerve-cells or that it produces persistent nerve lesions.

### 3. Euphorine (phenyl-urethane).

Adler (*Therap. Monat.*, 1891, June, p. 363), in twenty-four cases in which euphorine was given in 1-grain doses, three suffered from supra-orbital neuralgia, one from chronic nervous headache, three from sciatica, three from acute polyarthritis, nine from chronic articular rheumatism, and two from headache following the injection of tuberculin. In the cases of supra-orbital neuralgia, sciatica and muscular rheumatism, there was a rapid cure, as also happened in two or three cases of polyarthritis. The other cases were improved. It acted well in six cases of habitual hemiparesis. There were no unpleasant effects.

### 4. Exalgine.

Conning Hardy (*Rev. Génér. Clin. et Thérap.*, March, 1891) says he has repeatedly seen accidents from exalgine. Five minutes after a dose he has seen loss of consciousness, intense pain, and great dyspnoea, intense pallor of the face, irregular heart, and weak pulse, with profuse perspirations, just as in syncope.

Dyer (*Brit. Med. Journal*, 1890, vol. ii., p. 506) reports a case of exalgine poisoning, in which he gave  $2\frac{1}{2}$  grains three times daily. After six doses the patient was dull and heavy, as in carbolic acid poisoning; there was pain in the back, only a very small quantity of urine excreted, and that olive-green in colour, with great thirst and excessive salivation.

Flynn (*Brit. Med. Journal*, 1891, vol. i., p. 63) also reports a case (recovering from rheumatic fever) in which he gave 3 grains repeated in one hour. This was followed in fifteen minutes by great dyspnoea, failing pulse, and dilated pupils, with subsequent recovery. He thinks that small doses of exalgine are useless and large doses dangerous.

Braidwood (*Brit. Med. Journal*, 1891, vol. i., p. 147), in commenting on this case, says exalgine should never be given in convalescence from fevers, especially in such large doses as 3 grains. He has used the drug with great success in painful conditions.

Desnos (*Rev. Génér. de Thérap.*, Feb. 15, 1891) says that the physiological action of exalgine in man is almost localised to the cerebro-spinal system. Patients sometimes complain after its use of slight mist before the eyes (passing off in five to thirty minutes), ataxia, vertigo, with vomiting and shivering, buzzing in the ears, headache and drowsiness, sweating, and flashes of light before the eyes. He says these symptoms were produced by 4 grains in one patient only, by 12 grains in another. With the latter dose cyanosis, from marked destruction of the blood corpuscles, but no methæmoglobinuria may result. It has no bad effects on the digestive tract.

J. Sinclair Holden (*Brit. Med. Journal*, 1890, vol. ii., p. 734) considers exalgine very useful, and gives  $\frac{1}{2}$  to 1 grain. Pain is generally relieved by  $\frac{1}{2}$  grain within half an hour. Not more than four doses should be given, and if there is no relief then try something else. He says it is more efficacious in thin people of nervous temperament, but is useless if the pain is due to mechanical or organic causes.

Molony (*Brit. Med. Journal*, 1890, vol. ii., p. 896) also speaks favourably of the drug when given in 1-grain doses every four hours, especially in anæmic neurotic subjects; while

Brydon and others (*Brit. Med. Journal*, 1890, vol. ii., p. 1146) consider its action very uncertain.

### 5. Methylene blue.

Galliard (*Semaine Médic.*, 1891, April 29), speaking of the analgesic properties of methylene blue, says the drug is not harmless. In small doses ( $1\frac{1}{2}$  to 2 grains) given by the mouth it

M 70 U



might cause malaise, nausea, peculiar painful sensations, and even transient albuminuria. In large doses (4 to 6 grains), in persons not accustomed to its use, it might induce vomiting, diarrhœa, vesical tenesmus, and albuminuria. In persons of neurotic temperament it induced a "perturbation," which might have the effect of causing the disappearance or change of seat of pain, and occasionally it might soothe pain or calm excitement, but it could not in any way be compared with antipyrin.

### 6. Sciatica

Weir Mitchell (*Internat. Clinics*, vol. i., 1891) says that slight cases of sciatic neuralgia recover, as a rule, after rest for a few days, together with dry cuppings, sinapisms, and correcting the constitutional state. But even these cases may become chronic and end in a true congestive and inflammatory condition. Generally, sciatica is not functional, but organic from the first and is represented by an inflammation of the nerve-sheath, connective tissue, and neurilemma. The symptoms may then be of long duration, as for months or years, and the nutrition and sensibility of the leg become affected. Old sciatica is generally single, whereas pain in both nerves may be due to disease of the cord or cauda equina. After eliminating rheumatism, gout, syphilis, trauma and pelvic growths, and deciding that the case is one of neuritis, then secure rest in bed and fix the leg on a splint. This may be either the old-fashioned long splint from the axilla to the foot, or a roughly-moulded anterior splint, with a wooden attachment carried up laterally to the waist or axilla; the ankle must be so sustained that the heel does not carry the weight of the leg; the knee must be gently flexed, and the angle of flexion changed a little at each dressing. After a few days of distinct rest all the joints must be carefully and slowly flexed and extended very slightly to prevent stiffness. Only sufficient bandage to keep the splint in position must be used; if a long splint cannot be borne, then use an anterior suspension splint. If the case is not cured then apply Pacquelin's cautery daily at the painful points. If still obstinate, dry cold may be tried, by keeping an ice-bag on the painful nerve track day and night for two or three weeks, or the leg may be put in a tin or copper gutter, on the under part of which is an ice case 3 or 4 inches wide. As the pain disappears the cold is diminished, until it is only applied at night or for one or two hours twice a day. Massage should now be used, both of the muscular masses of the leg and also a deep rubbing over the nerve-track in a downward direction for half an hour twice a day. When the pain is gone the patient should stand and walk with the help of crutches, and



not sit long at a time, as this presses on the nerve. If the patient is thin and anæmic then general massage should be used, with iron and cod-liver oil and milk and soup between meals. Strong galvanic currents may be employed in the milder forms of sciatic neuritis, but they are more painful than the cautery and not so efficacious. If the limb is wasted and does not improve then give the induced current. Nerve-stretching may rarely be serviceable. In double sciatica from caudal disease an operation is often necessary.

Jaccoud (*Amer. Med. News*, 1891, p. 419) says that in the acute period of sciatica severe counter-irritants or local depletions should be used with morphia injections; but if anæmia is present vesication must not be produced. If rheumatism is the cause, then give salicylate of soda, 30 to 60 grains daily. In other cases give hydrobromate of quinine, 15 to 30 grains daily, until cinchonism results; then wait a day or two and administer again. If chronic, then iodides and bromides in large doses should be administered and externally resorcin, simple or turpentine vapour baths applied.

Mondhorst (*Therap. Monatsheft.*) says the diagnosis of sciatica is not always easy, as one must exclude inflammatory thickening of the rectus femoris and other muscles and rheumatic affections of the joint, and various tendons, especially of the tensor vaginæ femoris. In cases of sciatic neuritis the treatment consists of a hot bath, fifteen minutes to one hour in duration, and followed by rest in bed for another hour. This is succeeded by electrical massage, the negative pole, with a superficial area of 100 cm., being applied to the sciatic notch; while the positive pole consists of a revolving cylinder, which is passed down the limb along the nerve with deep pressure, returning with light pressure. The strength of the current should be from 5 to 10 milliampères. Thirty-six cases were treated in this way, of whom thirty recovered and six improved; the average length of treatment was three to six weeks.

W. B. Pritchard (*Amer. Journ. of Med. Sci.*, Jan., 1891, p. 42), in speaking of sciatica and its treatment, says a careful distinction must be made between sciatic neuritis and sciatic neuralgia, and gives the following diagnostic table:—

SCIATIC NEURITIS.	SCIATIC NEURALGIA.
Causes: wounds and tumours.	Same, but anæmia and malaria oftener.
Pain duller in paroxysms, and in the intervals paresthesia, as pricking, tingling, and numbness.	Pain sharp and more constant; paræsthesiæ (except numbness) rare.

## SCIATIC NEURITIS.

Movement, especially forced extension, gives pain.

Anæsthesia often rapid in onset and in limited areas.

There may be swelling of the nerve trunk and tenderness on pressure.

Trophic changes in the skin, hair, nails, and muscles, with paresis or paralysis, and reaction of degeneration.

Faulty position of body (Babinski).

## SCIATIC NEURALGIA.

Pain not affected by movement.

Actual anæsthesia very rare, but general numbness may occur.

No swelling, and distinct pain (not tenderness) on pressure at certain points.

None except wasting from disuse.

Quite exceptional.

For sciatic neuralgia, antipyrin, antifebrin, exalgine, cocaine, or osmic acid, may be given; but phenacetin,  $7\frac{1}{2}$  grains every four to six hours, is the best, with tonics, change of air, iron, quinine, and arsenic; exalgine is very unreliable.

In sciatic neuritis we must look for and remove the cause. This may be mechanical and local or constitutional, such as wounds, strains, hip-joint disease, tumours of pelvis, fecal accumulations, uterine displacements, varicose veins or aneurisms; cold, lead, or arsenic poisoning; diabetes, alcoholism, syphilis, malaria, typhoid, or phthisis. If we cannot find or remove the cause, then relieve the pain, antagonise the inflammation, and give rest. The last is the most important, and must not only consist of rest in bed, but also of mechanical appliances, such as long hip-splints, until the symptoms disappear or the disease becomes chronic. Antagonise the inflammation by ice-bags; sometimes hot applications are better, but do not alternate hot and cold. In the acute stage morphia must be used. After the pain is relieved get rid of the morbid products of inflammation by massage—gentle at first, once or twice daily for fifteen to thirty minutes. Give short sittings of galvanism of 5 milliampères strength; if the disease is more chronic, increase or slowly interrupt the current. Turpentine, nitrate of silver, sulphur, cocaine, and iodide of potassium, he considers are of very little use; counter-irritation is not at all certain, and nerve-stretching is worthless.

**7. Headache.**

M. J. Simon (*Med. Stand.*, May, 1891) gives the following causes for the headache of childhood:—Growth, fatigue, mental overstrain, digestive troubles, different neuroses, gouty and rheumatic diatheses, anæmia, toxic, nasal, naso-pharyngeal ear and eye disorders, and meningitis. Headaches of growth appear especially in the morning, occupy the frontal and vertical regions, and are increased by motion; they should be treated by tonics and



rest. For the headache of commencing hysteria he recommends hydrotherapy, and thinks that tonics, and especially iron, are useless; the bromides are inferior as anti-spasmodics to valerian, aconite, antipyrin, or phenacetin. The headache of epilepsy is characterised by an abrupt attack accompanied by cerebral torpor, and is for some time the equivalent of the convulsion, abundant urination occurring at the end of an attack. Early treatment by bromides and belladonna is here most important. Gouty and rheumatic headaches are rare in children, and are often accompanied by decided congestive phenomena simulating meningitis.

Trusevich (*Med. Age*, March 25, 1891) recommends a 1 per cent. alcoholic solution of nitro-glycerine in headaches. In a very obstinate case, however, a 10 per cent. solution was used, 2 minims being first given, after an interval of three minutes, 3 minims more. As a rule, two or three 1 minim or 2 minim doses of the 1 per cent. solution placed on the tongue at intervals of a few minutes arrested headaches. He says that all cases depending on a vaso-constrictor neurosis are curable by nitro-glycerine.

Naegely (*Le Semaine Médic.*, Sept. 3, 1890) says he relieves neuralgia of the fifth cranial nerve by raising the hyoid bone and the larynx by means of the thumbs, the index fingers being placed behind the ears.

### III.—THE TREATMENT OF EPILEPSY, CHOREA, AND EXOPHTHALMIC GOITRE.

#### A.—EPILEPSY.

During the past year there has appeared a work, "Epilepsy: Its Pathology and Treatment," by H. A. Hare, M.D., Philad. and London.—F. A. Davis. This contains no specially new facts, but is a good epitome of all previous work done.

##### **1. Fallacies in Treatment.**

Diller (*University Medic. Magaz.*, Dec., 1890) points out the fallacy of drawing too rapid conclusions of the use of drugs in epilepsy. It will not do to base conclusions on the use of drugs for merely two or three months, for in the natural course of the disease there may be periods of absolute or comparative freedom from attacks. The drug to be tested must be given for at least a year before an opinion of its value can be estimated. Tolerance is often established in so-called epileptic remedies, and then severe epileptic storms occur. For instance, nine cases were treated by paraldehyde for four months, and the attacks were



lessened from 25 to 75 per cent. of what they were before; but during the next four months the results were disappointing, and the attacks were not averted in the same proportion.

## **2. Amylene hydrate.**

Umpfenbach (*Therap. Monatsh.*, Oct., 1890) has used this drug in epilepsy at the asylum at Andernach. He gave it in seven cases in doses of 75 to 120 minims per day. In two patients, who generally had about ten epileptic attacks monthly, the fits remained absent as long as the drug was taken. In another case the effect was very transient, and in the others there was no improvement. The drug had the great drawback of causing sleepiness and then excitement after its hypnotic effect had passed off.

## **3. Antipyrin.**

McCall Anderson (*Amer. Journ. of Med. Science*, May, 1891) reports a case of a boy aged nine years suffering from severe epilepsy. He ordered antipyrin, 5 grains, three times a day, this being increased one grain in each dose on each successive day; the fits ceased when 25 grains three times a day were given, but reappeared when the dose was reduced to 20 grains thrice a day, finally ceasing entirely when 25 grains were again given.

## **4. Antipyrin and ammonium bromide.**

Three years ago, H. C. Wood, of Philadelphia, suggested the use of a mixture of antipyrin and bromide of ammonium in epilepsy. This treatment has been tested by Potts (*Univers. Med. Mag.*, Oct., 1890) in forty-three cases. In none did the combination fail to give marked relief, and in some of the cases all other remedies had failed. The dose given was 6 grains of antipyrin and 20 grains of ammonium bromide.

Hay (*Medical Age*, July 25, 1891) treated thirty cases of epilepsy by antipyrin and bromide of ammonium. Only the most hopeless cases were tried, and in some the convulsion rate was unaffected, but as a rule the attacks were lessened, and even in cases where the bromides alone had proved useless; no bromism was noticed.

## **5. Apomorphia.**

Horsley, of West Point, Georgia (*Medic. Rec.*, No. 23, 1891), accidentally found that apomorphia controlled strychnine convulsions, and since has used it with great success in all forms of convulsions, such as in infantile eclampsia, and in true epilepsy, where, if given during the aura, it prevents the fit coming on. He gave the drug hypodermically in doses of from  $\frac{1}{16}$  to  $\frac{1}{8}$  grain.

## **6. Bromide of gold.**

It was reported at the St. Petersburg Society of Psychiatrists

(*New York Medical Rec.*, vol. xxxviii., No. 7, 1890) that in doses of  $\frac{1}{8}$  grain this drug promptly relieved epileptic seizures, and this, without causing any unpleasant effects of bromism, even when continued for a long period.

#### 7. Bromide of potassium.

Petit (*Therap. Monatsh.*, Aug., 1890) says that in order to avoid gastric and nervous disturbances, the dose of potassium bromide should not be rapidly raised to its full extent. Twenty to thirty grains daily should at first be given, and the amount raised at intervals of from 14 to 30 days (according to the sensitiveness of the patient) by from 7 to 15 grains. In this manner a daily dosage of from 90 to 130 grains may be reached in the course of three to six months. He considers that for a man 60 to 75 grains is an average daily dose, and for women 45 to 60 grains. Unpleasant effects follow only in consequence of a too rapid increase of the dose, or by the use of an impure drug.

Poulet (*Bullet. Général de Thérap.*, March 15, 1891) treats epilepsy by combining the bromides with some organic agent capable of producing anæmia of the brain. The dose varies with the age, sex, idiosyncrasy, and the intensity of the affection. In female adults 75 to 90 grains of a bromide, and in male 100 to 120 grains may be given daily, combined with  $\frac{1}{8}$  grain sulphate of eserine or picrotoxin, or  $\frac{1}{160}$  grain of sulphate of atropia. Instead of eserine we may substitute 30 minims of tincture of Calabar bean, or 10 grains of the powdered bean daily; instead of the atropia 30 minims of the tincture of belladonna may be given. He concludes that if the treatment is faithfully carried out no case of essential epilepsy will resist it.

#### 8. Sulphonal.

This drug is recommended by Esson (*Thèse de Paris*, No. 254, 1890) as a sedative in epilepsy and insanity. He says it sometimes suppresses the fits, and in other cases diminishes their frequency and intensity. It was not found to be so serviceable in *petit mal*. In cachectic subjects only small doses should be given, and the action carefully watched.

#### 9. Bromide of ethylene.

Donath (*Therap. Montashef.*, June, 1891) has made trials of ethylene bromide in severe epilepsy. His idea in using it was that the saline action of the ordinary bromides was injurious in many cases, and that it would be advantageous to have a bromide compound which could not exert the action of a salt. Bromide of ethylene,  $C_2N_4Br_2$ , contains 90.9 per cent. by weight of bromine; it is a slightly brownish liquid, smelling slightly of chloroform,



with a sweetish burning taste, insoluble in water, and much heavier; it is very soluble in rectified spirit, and gives with oil of almonds a clear solution. It is prescribed as follows:—Ethylene bromide 75 grains by weight, oil of peppermint 2 minims, and emulsion of oil of almonds to 1,500 grains; thirty minims of the mixture to be taken two or three times a day in sugar-water or milk. The dose is gradually raised to 60 minims thrice daily. One gramme or 15 grains by weight of ethylene bromide gives 38 minims. Also ethylene bromide, rectified spirit of each 75 grains, oil of peppermint 2 minims, give 5 to 15 minims thrice daily in milk. Or it may be given in capsules containing ethylene bromide 3 minims, oil of almonds 6 minims; two to four capsules to be taken thrice daily; when so given no disturbance of digestion results. Donath gave the drug in twenty-one cases of epilepsy, but of these only ten were observed long enough to give reliable results. Under this treatment the attacks became fewer, milder and shorter, often assuming the form of *petit mal*, or else simple muscular twitchings without unconsciousness. It is probably a good substitute for ordinary bromides, and shows also that it is the bromine and not the potassium which is serviceable when bromide of potassium is given.

#### 10. Biborate of soda.

Dijoud and Lailler (*Répertoire Pharmacie*, Aug. 10, 1890) confirm the observations of Risien Russell, Taylor, and others, as to the value of borax in epilepsy, but they have seen no untoward effects even with large doses, and do not find that the drug has special advantages in nocturnal epilepsy. Dijoud has tried it in twenty-five cases of chronic epilepsy in which the bromides had been used either without success or with no satisfactory results. The duration of treatment was from four to seven months, and the daily dose varied from 15 to 90 grains. He entirely cured one case and notably relieved all the others except six. The dose should be small at first. Lailler recommends syrup of bitter orange-peel as an excipient, with the addition of an equal weight of glycerine if the amount of the salt exceeds 60 grains. He gives a dose night and morning.

#### 11. The treatment of status epilepticus.

Trowbridge and Mayberry (*Journal Ment. and Nerv. Dis.*, p. 399, 1891), in an excellent account of status epilepticus, divide that condition into two stages, the convulsive and the comatose, the latter being sometimes replaced by a period of maniacal excitement. The prognosis is very unfavourable, the mortality being estimated at 50 per cent., the three most probable modes



of death being exhaustion, cerebral hæmorrhage, and cerebral effusion. The two indications for treatment are: 1, to bring the convulsive period to an end as soon as possible; and 2, to sustain the life of the individual through the stupid or excited period. They consider the following methods of treatment:—

1. Ether and chloroform may be given for immediately stopping the convulsions by paralysis of the motor cerebral centres and causing complete muscular relaxation. They are not much use, however, as the convulsions return before the patient has recovered consciousness from the anæsthetic, but they may be serviceable when exhaustion from repeated convulsions is imminent, and while we are waiting for other remedies to act.

2. Chloral hydrate given by the rectum in doses of 30 grains, repeated if necessary in one hour, is successful in some cases, but oftener fails; they did not try it hypodermically.

3. Potassium bromide, even in large doses, and amyl nitrite, were quite useless in status epilepticus.

Similarly, salicylate of physostigmine,  $\frac{1}{80}$  grain, was no use, and sulphate of morphia  $\frac{1}{4}$  grain given during ether inhalation was only useful in one case. Atropine sulphate is impossible to use, as the large dose required would cause heart failure; small doses, however, are good as a respiratory stimulant.

4. Hyoscine hydrobromate, if given in sufficient doses of  $\frac{1}{100}$  to  $\frac{1}{80}$  grain hypodermically produces almost immediate sleep and is an excellent remedy if the heart and respiration are not weak. The convulsions quickly cease, but it does not absolutely bring the attack to an end, as the convulsions recur after the two to eight hours' sleep caused by the drug, but the sleep in itself is of great benefit.

5. They consider, perhaps, the best means of stopping the series of convulsions to be hydrobromate of conine. After its use the convulsions soon cease, its action being from the periphery to the centre, the twitching first disappearing in the legs, then in the trunk and arms, and finally in the head and face. It causes slight dilatation of the pupils and ptosis, some impairment of the general sensibility, the heart beating slow and full, respiration slow and laboured. Combined with sulphate of morphia, sleep follows, lasting several hours. If the convulsions recur they commence with fibrillary twitchings, which begin in the face and travel downwards. The dose is  $\frac{1}{100}$  to  $\frac{1}{80}$  grain hypodermically, and repeated as often as indicated, watching the respiration carefully. It is best combined with the sulphate of morphia. It only failed in two cases, and in these cerebral hæmorrhage was present.

The exhaustion of the patient is best overcome by hypodermic

injections of atropine in small doses, and digitaline. Quinine may be given, and eggs, milk, and stimulants must be injected into the stomach, especially if the condition is of long duration.

[In English asylums the treatment generally adopted for status epilepticus is to give large doses (60 grains or more) of chloral by the rectum. Others often give chloral hypodermically in doses of 30 to 40 grains. Stimulants should be given at the same time to prevent depression of the cardiac action.—*Rep.*]

**12. Pearse** (*Practitioner*, p. 29, 1891), in speaking of paroxysmal nerve disorders, especially mentions asthma, migraine, and epilepsy, and for all recommends a mixture of succus belladonnæ 15 to 20 minims, with 10 grains of chloral, every four hours.

## B.—CHOREA.

### 1. Antipyrin.

**Legroux** (*Bull. et Mém.*, Dec. 25, 1890) read a paper before the Société Méd. des Hôpit. de Paris, giving the results of the treatment of chorea by antipyrin in sixty cases. It was found beneficial in two-thirds of the cases, rapidly diminishing the intensity of the disease and shortening its duration, but there was a recurrence in three-fifths of the cases. Where the drug failed it was due to intolerance (vomiting, diarrhœa, etc., being caused) or to cutaneous eruptions; in a few cases no effect whatever was produced. It was necessary to give large doses and to reach the maximum dose in a short time. Between the ages of six and fifteen 45 to 90 grains a day were well borne for several weeks, no serious symptoms of poisoning occurred, and when slight bad results ensued the drug was stopped for a time, and on readministration no evil effects occurred. None of the cases had any rheumatic symptoms, and none were serious.

### 2. Exalgine.

**Moncorvo** (*Bull. Génér. de Thérap.*, Nov. 30, 1890) records a case in which an attack of chorea in a girl eight years old was apparently subdued by exalgine. After the chorea (due to fright) had lasted for ten days 3 grains of exalgine were given daily. As a result there was marked improvement in four days, but two days later a second fright aggravated the movements. The drug was now increased to  $4\frac{1}{2}$  grains daily, with improvement in four days, and in ten days after the child was well.

### 3. General.

**Groedel**, of Wanheim (*Internat. Klin. Rundschau*, April 19, 1891), read a paper at the recent Congress of Balneology at Berlin, on the treatment of chorea. He says that out of many suggested drugs, two only are worthy of consideration, namely, arsenic and



antipyrin; if anæmia exists then iron should be also given. The cure is materially aided by systematic gymnastics; the patient should make active movements, watching them carefully himself. Fatigue is to be carefully avoided, so the exercise must be of short duration and repeated frequently. He is opposed to sending patients to any water-cure during the acute stage. Gentle cold-water treatment or tepid baths may be used at home with advantage. When the patients are convalescent they may be sent to the sea coast, or some iron spring, in order to improve the general health and to prevent relapse.

#### C.—EXOPHTHALMIC GOITRE.

Hingston Fox (*Brit. Med. Journal*, vol. i., p. 861, 1891) recommends the following treatment in Graves's disease:—1. Moral and hygienic care; 2. Improvement of the nutrition, much milk and cod liver oil; 3. Belladonna in mild and early cases, iodides in the later stages pushed fearlessly to large doses, bromides in some cases; 4. Locally weak continuous currents applied to the thyroid gland through a large plate, persevering a long time in its use. In some cases Leiter's cold coil applied to the thyroid might be of service.

### IV.—THE TREATMENT OF TETANUS AND MUSCULAR SPASM.

#### A.—TETANUS.

##### 1. General.

From the researches of Kitasato, Vailliard, and Vincent (*Annales de l'Institut. Pasteur*, Jan., 1891), Tizzoni and Cattani (*Riforma Medica*, p. 157, 1891), Peiper (*Deutsch. Archiv. für Klin. Medic.*, Oct., 1890), and others, we now know that tetanus is certainly due to a bacillus, which is "drum-stick shaped." These have not only been isolated, but pure cultivations have been made, and attacks of tetanus induced in animals by inoculation with the culture. It has been, moreover, proved that the actual cause of the nervous symptoms in tetanus is not the presence of the organisms in the nerve-centres, but the presence in the blood of the products of life of the organisms, or the so-called tetanus toxalbumen, which is something of the nature of a diastase. Most of the recent researches into the ætiology of tetanus will be found in the work "*Premières recherches sur la nature et l'étiologie du Tetanos*," by René Verhoogen and Charles Baert, published at Brussels by Henri Lambertin, 1890. This gives a full account of the anærobic tetanus bacillus, which rapidly loses its virulence



on exposure to the air. It is usually met with out of the body in the soil or in the surroundings of horses such as in stables; they consider that the horse is merely an intermediary, just as the cow is in the case of tuberculosis.

## **2. Carbolic acid in tetanus.**

Gancel and Froche (*Arch. de Méd. et de Pharmac. Milit.*, Sept., 1891) report a case of traumatic tetanus in which the cure was effected by means of hypodermic injections of carbolic acid. Trismus first occurred three days after the injury. Chloral, potassium bromide, subcutaneous injections of quinine all failed, and then carbolic acid (equal to  $\frac{1}{6}$  grain) was injected every two hours. The effect was almost immediate, the spasms becoming less violent and painful. The injections were continued for seventeen days, and the patient was discharged cured fifty days after admission. This treatment was first used by Baccelli (*Italian Medic. Congress*, 1888) who ascribed the cure to the sedative action of the drug on the spinal centres, but the above observers say it acts as a parasiticide.

## **3. Carbolic acid and antifebrin.**

Francesco Pirrari (*Riforma Medica*, Feb. 5, 1891) gives a case of traumatic tetanus, cured by carbolic acid injections and antifebrin given internally. The wound was slight, but filled with earth and manure, trismus occurring five days after. Treatment by potassium bromide, chloral, and morphia was futile, and so Baccelli's method was tried. From 6 to 10 Pravaz syringe-fuls of a 1 in 20 solution of carbolic acid were injected daily until the urine was black. There was a slight improvement; then antifebrin ( $\frac{1}{4}$  to  $\frac{1}{2}$  grain) was given every three hours for two days, alternately with the carbolic injections for two days. The spasms were much less on the antifebrin days, and the patient finally recovered.

## **4. Chloral hydrate.**

Maylard (*Brit. Med. Journal*, June 27, 1891) mentions a case of tetanus in which the patient could still swallow. He administered chloral hydrate to an almost dangerous extent, giving  $\frac{3}{4}$  ounce in the first twenty four hours, in three days  $1\frac{3}{4}$  ounces, and a total during the illness of 5 ounces 5 drachms 20 grains; a chloral rash developed and also epileptiform convulsions, but the patient entirely recovered.

## **5. Chloral hydrate and cannabis indica.**

Cooke (*Brit. Med. Journal*, 1891, vol. i., p. 39) gives two cases of traumatic tetanus, in which he administered large and increasing doses of cannabis indica (1 to 2 grains of the extract) with chloral hydrate (25 to 40 grains) and potassium bromide every six hours,

so as to keep the patients narcotised. They were thus kept asleep for a week, only being occasionally partially wakened to give food and wine, and nutritive enemata. Strips of fresh belladonna plaster, 3 inches in diameter, were put on the spine from the neck to the sacrum. There was complete but slow recovery in both cases.

#### 6. Paraldehyde.

Ignatieff (*Gazzet. Med. di Roma*, 16, 1890), proceeding on the experience of Rummant, Nopoff, and Cervello—according to whom paraldehyde acts upon the nerve-centres as well as upon the peripheric nerves—prescribed it in two cases of tetanus, in which chloral had been found useless. The drug was administered by the mouth and rectum in daily doses of about 150 minims. Both patients recovered completely, with no disagreeable after-effects. Dr. Tchervinsky also communicated to the writer a similar experience. Paraldehyde not only causes the convulsions to disappear, but also diminishes the pain, quiets the patient, combats the insomnia, and permits feeding, thus allowing the body a possibility of eliminating the tetanus virus.

#### 7. Pilocarpine.

Enrico dell'Acqua, of Pavia (*Gaz. Med. Lombard.*, Nov. 8, 1890), effected a complete cure in three consecutive cases of severe traumatic tetanus by merely injecting hydrochlorate of pilocarpine.

#### 8. Strychnine.

Peyraud (*Bull. de l'Acad. de Mèdec.*, No. 40, Oct. 7, 1890) found that, having vaccinated ten rabbits with  $\frac{1}{120}$  grain of strychnine daily for five days, and then injected the tetanic virus, only three died; whereas four test rabbits, not vaccinated with strychnine, all died after being inoculated with tetanus. Other experiments of a similar nature were made with a like result; but a committee, consisting of Verneuil, Trasbot, and Nocard, on investigating the above, could not obtain the same results.

#### 9. Urethane.

Maresti (*Raccogliore Medico*, Sept. 30, 1890) mentions a case of traumatic tetanus from injury to the great toe. This was curetted, and carbolic acid and corrosive sublimate applied. Chloral (30 grains) was given three times daily for twenty days, when the opisthotonos disappeared, but the trismus and rigidity of the pectoral and abdominal muscles remained. Urethane was then used, as Professor Coza had noticed its antagonism to strychnine convulsions; at first 30 grains a day were given, and, finally, 45 grains daily, the patient recovering.



## B.—TREATMENT OF MUSCULAR SPASM.

## 1. Atropine.

Leszynsky (*Journ. Ment. and Nerv. Dis.*, 1891, p. 248) gives a case of clonic torticollis, especially affecting the platysma, which he treated successfully by subcutaneous injections of atropine ( $\frac{1}{480}$  to  $\frac{1}{240}$  grain) into the muscle. In three days the spasm diminished; the dose was gradually increased to  $\frac{1}{48}$  grain, and in two weeks recovery ensued.

## 2. Irritants applied to fifth cranial nerve.

Kurt (*Deut. med. Zeitung*, May 7, 1891) suggests a method for controlling spasmodic conditions due to motor neuroses. Recognising the fact that the application of certain irritants to the peripheric endings of the trigeminal nerve (particularly at the conjunction of the orbital and nasal mucous membrane) retards reflex action, he takes advantage of this to utilise such drugs as antipyrin, quinine, and sugar. These he dusts with a camel's hair brush either into the eye or nose, and asserts that he can thereby control the spasm of whooping-cough, laryngeal spasms, facial contractures, and some forms of epileptic attacks.

## V.—THE USE OF SUSPENSION IN CHRONIC NERVOUS DISORDERS AND THE TREATMENT OF LOCOMOTOR ATAXIA.

Reid and Sherrington (*Brain*, 1890, p. 455) have experimented on the effects of movement of the human body on the size of the spinal canal, and arrived at the following conclusions:—1. When the body hangs freely and vertically from the skull the capacity of the cranio-vertebral canal is at a maximum. 2. With the body in the above position when the weight of the limbs and trunk is taken off, for instance, by lifting and supporting the body vertically, there is a diminution in the capacity of the cranio-vertebral canal, but the diminution is a very slight one. 3. When the vertebral column is bent backwards or forwards, especially in the former direction, there is a not inconsiderable diminution in the capacity of the canal as compared with its capacity when the body is hanging freely and vertically. 4. The alterations in the curvature of the spinal canal by various movements of the body do influence the capacity of the canal, but not to any great extent; much more, however, in the child than in the adult. From measurements, it would appear that by suspension the size of the spinal canal is increased, in an adult of middle age, to the



extent of some 100 cubic millimètres. Estimating the total capacity of the canal at 102 cubic centimètres, this means an increase in capacity to the extent of  $\frac{1}{1020}$  of the whole canal. This is so small that it is difficult to conceive how, in the suspension treatment, there can be any actual stretching of the spinal cord.

Danillo and Przychodski (*Vratch*, 1890, Nos. 25, 26, 27) record their results of treatment by suspension in eleven typical cases of locomotor ataxia. In most, the lightning pain improved considerably, or even completely disappeared, after a few suspensions. In some, the power of walking and standing, and the difficulty of micturition improved, and in seven cases the power of erection returned. Occasionally, untoward symptoms—such as cyanosis, protrusion of the eyes, faintness, sickness, and disturbances of respiration—came on after the first suspension, but quickly passed off; in two cases, however, they were so marked that the treatment was discontinued.

Rosenbaum (*Berlin. klin. Wochens.*, No. 33, p. 521, Jan. 9, 1890) states that he has had no accidents in 240 suspensions. Each of his eighty-five patients were generally suspended for three minutes thrice weekly; but of seventy-six cases, in fifteen the treatment was not carried out for a sufficient length of time; but of the other sixty-one, twenty-five improved, five very much so. In nine the result was doubtful. The improvement was shown in the sleep, appetite, weight, external appearance, pains and ataxic gait. In a few vesical troubles, sexual impotence, crises and paræsthesiæ were remedied, but in no case was there any ocular improvement. No improvement was noticed in four cases of myelitis, three of paralysis agitans, one of disseminated sclerosis, and one of lumbago.

Guttmann (*Ibid.*, No. 26, p. 597, Jan. 30., 1890) obtained no result in half of his cases. In the other half there was improvement in the ataxia, paræsthesiæ and pains, but no ocular change. Two cases of myelitis improved, one case of sciatica improved but relapsed, the pains were lessened in a case of cyphosis, but there was no improvement in a case of scoliosis. Speaking generally, he thinks the method is not superior to other modes of treatment.

Lumbroso (*Archiv. Ital. di Clin. Med.*, March, 1890) has experimented on animals with suspension. There ensued rapid pulse and respiration, and slight torpor. Congestion and hæmorrhages occurred in the cord and meninges, not during, but after the suspension, anæmia of the parts being the first effect; the changes were most marked in the cervical region, and the hæmorrhages mostly in the grey matter and nerve-roots. Suspension in man should be very short, a period of one minute being only gradually

reached. The method should not be used in emphysema, obesity, or old age. He thinks it is of service in tabes, infantile paralysis, amyotrophic lateral sclerosis, progressive muscular atrophy, and certain neuroses.

Altichieri (*Ibid.*, June, 1890) summarises the results of treatment of 174 cases; of these 128 were improved, in twenty-eight no result, in fourteen accidents occurred, and in six death. It is generally useless in paralysis agitans, disseminated sclerosis, sciatica, and chronic myelitis.

Gilles de la Tourette (*Progrès Médic.*, Jan. 7, 1890) says suspension is good in three groups of cases, chronic sciatica, paralysis agitans in the middle period of the disease, and tabes dorsalis. In the last disease 25 per cent. of the cases are relieved in all the symptoms, 35 per cent. partially relieved, and in 40 per cent. no good resulted.

#### **Other treatment of locomotor ataxia.**

Strumpfell (*Munch. med. Wochenschr.*, 1890, No. 39, p. 667) agrees with Fournier that tabes is nearly always syphilitic, but says the degenerative changes found are not to be considered as syphilitic new formations, but as a result of post-syphilitic intoxication of the body, just as the nerve lesions in diphtheria, and so antisiphilitic remedies are unavailing. He thinks, also, that the various crises are of toxic origin. He says that all circumstances producing overstrain or weakening of the body in general, especially of the nervous system, diminish the resisting power of the nerves to morbid agents, and emphasises the importance of avoiding all over-exertion in cases which have as yet shown no traces of affection of gait.

In treatment, no great influence can be exerted in any way upon nerve-fibres already atrophied; and suspension may in many cases be followed by temporary symptomatic benefit, but never by any permanent good. Antisyphilitic treatment should be tried for two reasons:—First, because syphilis may still exist in the body, and so in early tabes further changes may be prevented or retarded (though there is not much hope of such action); and secondly, because similar symptoms to tabes may be caused by a gumma.

Fraenkel (*Munch. med. Wochenschr.*, 1890, No. 52) points out that there are two chief theories to account for inco-ordination of movement, one attributing the ataxia to a disturbance of sensation, the other explaining it by a primary lesion in the co-ordinating centres. He believes that every co-ordinated movement when it is once learnt leaves behind it an impression on the central organs. In ataxia, he finds that if the co-ordinating



path is not completely broken down, there is a chance of an adjustment being brought about by practice. With this end in view he orders a graduated series of movements to be practised daily, lasting a-half to one and a-half hours, and extending over eight to fourteen weeks. These movements are of three kinds: simple, simple co-ordinated, and complicated co-ordinated, such as writing. He has had fairly good results with this method.

## VI.—THE TREATMENT OF NEURASTHENIA AND HYSTERIA.

### A.—NEURASTHENIA.

The following book containing a full account of neurasthenia and its treatment has appeared, "*La Neurasthénie: Malade de Beard (Méthodes de Weir Mitchell et Playfair, Traitement de Vigouroux).*" By Dr. Lemand Levillain, with a preface by Professor Charcot. Paris: A. Maloine. 350 pp.

#### 1. General.

Benedikt (*Médecine Moderne*, Feb. 5, 1891) gives the treatment of neurasthenia, which, he says, is a disease which is the exclusive prerogative of the learned professions and business and political careers, and is a psychic disease of cortical origin, born of emotion and overstrain. The cause of the strain must be removed, though work of a different nature is advantageous if sufficient repose afterwards is possible; complete inactivity is bad. This selection of a different occupation is often difficult. The patient must be dominated and taken firm hold of by the physician, who must have much ingenuity, strategy, and tact. Interesting travel is good; games, especially those requiring skill, such as chess, billiards, and cards, are invaluable. General faradisation and galvanisation are useful, iron and arsenic may be given for a time, bromides with digitalis and valerianate of zinc for the insomnia. Other useful means of treating the insomnia are the electric douche, and so arranging the meals as not to interfere with sleep; alcohol is often a valuable hypnotic. Physical exercise should always be associated with intellectual work. Vacations and strict observance of Sunday repose are excellent preventives of neurasthenia.

#### 2. Spinal irritation.

Lydston (*Med. and Surg. Reporter*, Philad., Sept. 13, 1890) considers spinal irritation to be a local condition due to varying blood supply, at one time anæmia and at another hyperæmia of the cord or its various regions. He says the primary cause should



be treated and then the cord circulation should be equalised. He recommends Stillman's method of extension on a curved board. He considers that it is not possible by stretching the spinal column to stretch the loose spinal cord or the spinal nerves themselves; but that extension acts by the formation of a vacuum of greater or less extent in the canal, thus leading to an active determination of blood to the part, with stimulation of the functions of the cord, and improvement in nutrition. He condemns Motschowsky's method, as it is painful and risky, and there is too much strain in the cervical region, with tension on the various organs in the neck. In addition to using a curved board in spinal irritation, he orders exercise of the muscles and electricity, especially the static form.

### 3. Neurasthenia of gastric origin.

Dujardin-Beaumetz (*Berl. klin. Woch.*, No. 31, 1890) draws attention to the complex symptoms which characterise neurasthenia of gastric origin. These consist in alterations of the gastric, intestinal, and abdominal functions, as well as in general disturbance and nervous troubles. There is present dilatation of the stomach, often constipation, temporary congestion of the liver, and in women prolapse of the right kidney. Amongst the general symptoms are chilliness, the hands cold and moist, and the fingers show peculiar nodosities (of Bouchard). He accepts the suggestion of Bouveret that the initial gastro-ectasis is a consequence of a paresis of the muscular coat of the stomach, due to morbid states of the nervous system; in some cases the dilatation appeared to be hereditary, while it may remain latent during a long period, and the neurasthenic symptoms slowly develop. There are two classes of cases, one in which the dilatation does not appear to have much influence on the nervous phenomena, both existing side by side, the treatment of one not influencing the other; and a second class, in which there is a distinct relation between the two, treatment of the gastric dilatation relieving the nervous disorder.

The therapeutics ought to be based on gastro-intestinal antiseptis. This may be carried out (1) by the use of antiseptics, such as salicylate of bismuth,  $\beta$  naphthol, or salol; (2) removal of toxins by appropriate laxatives, where there is constipation; and in neurasthenia with diarrhoea, the use of intestinal lavage with a solution of  $\alpha$  naphthol 1 in 1,000; (3) the employment of an alimentary hygiene which reduces the toxins to a minimum. This may be effected by a vegetarian regimen, made up of eggs, green vegetables, and fruits; avoiding fish, game, molluscs, crustaceans, and ripe cheese. The food ought to be rendered

non-putrescible by prolonged cooking; the meal should be eaten slowly, and the amount of fluid taken limited. Massage is a useful adjunct.

#### B.—HYSTERIA.

Saundby (*Brit. Med. Journal*, 1890, vol. ii., p. 1209) defines hysteria as an exaggerated and undue demand for sympathy, leading to a gradual abandonment of the care of the body and control of the functions. It is almost always developed by the unwise and too-devoted services of near relatives. The cure must be a self-cure, the patients being taught to rely on their own efforts. Isolation from human sympathy, massage, douches, faradism, forced feeding, tonics and purgatives, occupy a secondary but important part in the treatment, as they remove the results of the hysteria. Hypnotism could not restore the needed mental vigour, but tended still further to destroy the patient's self-reliance.

### VII.—HYPNOTISM, MASSAGE, AND ELECTRICITY.

#### A.—HYPNOTISM.

The following works on this subject have been published during the last year:—

"A Treatise on the Nature and Uses of Hypnotism." By H. Bernheim, M.D. Translated from the second and revised edition by Christian A. Herter, M.D., of New York. London and Edinburgh: Young J. Pentland. This work is published in French by Octave Dorin, Paris.

"Hypnotisme et Croyances Anciennes." By Dr. L. R. Regnier, *Progrès Médical*. Paris.—This gives an account of magic and witchcraft in all times, with descriptions of religious ecstasy, demoniacal possession, and, finally, animal magnetism and hypnotism.

"Hypnotism, or Psycho-Therapeutics." By R. W. Felkin, M.D., F.R.S.E. Edinburgh and London: Young J. Pentland.

Ernest Hart (*Brit. Med. Journal*, vol. i., 1891, p. 721), in a paper entitled "Schools and Doctrines of Hypnotism," gives an excellent short summary of hypnotism up to date, with a reference to the two French schools of hypnotism at Nancy and Paris. He mentions and shortly describes catalepsy, lethargy, induced somnambulism, le grand hypnotisme, le petit hypnotisme, the dangers of hypnotism, action at a distance, and the use of revolving mirrors.



Schmidt (*New York Med. Journal*, 1891, Jan. 17) gives his personal observations in hypnotism as used in the treatment of neurasthenia, ovarian neuralgia, inflammatory rheumatism of the wrist, and hysterical insanity.

Bernheim (*Rev. Gén. de Clin. et de Thérap.*, June 17, 1891) reports a case of cure, by hypnotism, of masturbation in a boy of eight years of age. The habit was of three years' standing, and no remedies had been of any avail. He was hypnotised, and it was suggested that he should put away all ideas of self-abuse, and resist temptation to touch the genitals. He was hypnotised daily from April 9th to April 16th, and then every other day for some time. He gained weight, stopped the habit, and remained well. Bernheim says hypnotism is only useful in such a case if there is no neurosis present. He maintains that hypnotism, though sometimes ineffectual, is never hurtful; and so far from weakening the brain, enfeebling the will, or engendering neurasthenia, its effects when applied as a therapeutic resource, in suitable cases, are just the opposite.

Jakov V. Rybalkin (*Bolnitchnaia Gazeta Botkina*, Nos. 26, 27, and 28, 1890; and *Brit. Med. Journal*, vol. ii., 1890, p. 641) publishes his experiments on blistering produced by hypnotic suggestion to a patient that he should touch an imaginary hot stove. This suggestion was repeated thrice, and after waking the suggestion was carried out. In twelve hours there was a marked erythema on the parts which had been supposed to be burnt, and this was followed by blisters, which finally burst.

Kingsbury (*Brit. Med. Journal*, vol. i., 1891, p. 62) relates a case in which he says there had existed Dupuytren's contraction for twelve years in the right hand, and eight years in the left, accompanied by great pain in the hands, especially on grasping. He hypnotised the patient, put him into the cataleptic state, and then straightened the fingers, and found that the contracture was much relieved; another sitting next day absolutely removed the pain and contractures, and cured the patient.

J. Milne Bramwell (*Brit. Med. Journal*, vol. i., 1891, p. 468) relates cases of aphemia, sweating of the left wrist, and deafness, cured by hypnotism. Whitham (*ibid.*) thought that all individuals capable of displaying functional nerve disturbances could be hypnotised successfully. R. Arthur (*Brit. Med. Journal*, vol. i., 1891, p. 283) mentions a case of locomotor ataxia of eight years' duration, with atrophy of the legs, marked pains in the abdomen, chest, and legs, and much constipation. He was hypnotised, and thus the pain, constipation, and depression disappeared, and he was made generally comfortable.



Berillon, the editor of the *Revue de l'Hypnotisme*, in a pamphlet lately issued, gives the following indications for the use of hypnotic suggestion in hysteria. It is indicated in the treatment of the general condition in hysteria, and also to combat local manifestations such as hysterical paralyses, contractures, anæsthesia, aphonia, vomiting, and the like; also, in mental troubles of an hysterical nature, which may vary from simple mental instability, absence of voluntary power, and a spirit of contradiction, to actual delusions and maniacal excitement.

**Stuporose states following hypnotism.**

Solow (*New York Med. Journal*, March 14, 1891) records the case of a nervous subject who had been hypnotised by an amateur. This state was followed by violent convulsions, aphasia, and catalepsy, which lasted on and off for ten days. He was treated by morphine, sulphonal, put into a dark room, and ice applied to the head. After a few days a febrile attack ensued, which passed off in a few days. This was supposed to be due to a slight inflammation of the frontal region of the brain.

Nolan (*Journ. Ment. Science*, Jan., 1891) refutes the notion that hypnotism can be induced indiscriminately without danger. He mentions the case of a neurotic soldier, much given to sexual and alcoholic excesses, who was hypnotised, and as a consequence remained in the stuporose condition for four months. The eyelids blinked, the nostrils were expanded, the lips pursed and tremulous. Neuro-muscular excitability was noticed, and recurring visual painful hallucinations between the sleeping and waking periods. The insomnia was cured by sulphonal, and recovery resulted in five months.

**B.—MASSAGE AND ELECTRICITY.**

Two works on massage have been published during the last year—"A Treatise on Massage," by Douglas Graham, M.D. (second edition). New York: J. H. Vail and Co., 1890. This is good and full. The second is a description of Ling's Swedish movement cure, and is entitled "Technic of Ling's System," by Arvid Kellgren, M.D. Edinburgh and London: Young J. Pentland, 1890.

**General uses of electricity.**

Morton Prince (*Boston Med. and Surg. Journal*, Oct. 2, 1890), in an excellent epitome of the uses of electricity in medicine, says it is a most valuable aid in the diagnosis of certain forms of disease. It is of great therapeutic value in neuralgia (especially galvanism), acute and subacute neuritis, atrophy and paralysis following anterior poliomyelitis, in joint lesions, and disease of muscles, in hemiplegia following cerebral hæmorrhage, in

diphtheritic and pressure paralyses, in hysteria, muscular rheumatism, articular rheumatism, and painful neuroses.

In neurasthenia it acts as a tonic, relieves the nervousness, and dispels the insomnia, but is in no sense a cure. It is useless in locomotor ataxia, disseminated sclerosis, progressive muscular atrophy, muscular atrophy of the spinal type, myelitis, general paralysis of the insane, epilepsy, or migraine. Faradism probably works first by reflex action through the sensory nerves, inhibiting the pathological processes in the nerve-centres, upon which the local processes probably depend; and secondarily by a direct stimulation of nerves and muscles. It is by reflex action, probably, that pain is inhibited. Galvanism probably acts in the same way, and possibly produces local chemico-physical changes. In many cases relief is largely obtained through suggestion, especially in psychoses and neuroses.

W. J. Morton (*Journal Nerv. and Ment. Dis.*, No. 1, 1891) has devised a circuit-breaker for the Franklinic current, consisting of a pair of metallic ball electrodes, introduced at any point of the circuit, having a narrow air-space between them. The circuit is made when a spark overcomes the resistance of the intervening air. This circuit-breaker also removes the spark formation from the patient's body; it regulates the frequency of the discharge with the greatest delicacy, and the strength of the current. The Franklinic interrupted current thus created when applied to a motor point or a nerve produces tetanus with a minimum of pain. If a large group of muscle be the point in action, a peculiar sensation of lightness and buoyancy is felt in the limb. The author claims also that its effects upon the independent muscular excitability are associated with one upon the lymphatics, as shown clinically by the relief of muscular and articular rheumatism, neuralgia, etc.

## VIII.—THE TREATMENT OF DRUG CRAVINGS.

### 1. Various.

Clouston (*Edinburgh Med. Journal*, vol. xxxv., Nos. 6, 8, 9, 11) states that diseased cravings and paralysed control, though not always associated, are usually so. Having given an excellent list of this combined mental state, he alludes to specially marked examples. **Dipsomania** he classifies as: (1) Developmental and retrogressive, including the congenital cases where the higher inhibition has never developed; puberty and adolescence, climacteric, and senile; (2) the dipsomania of the neurotic diathesis; (3) somatic dipsomania where trauma, sunstroke, paralyses, brain



erysipelas, or brain lesions have weakened the self-control of otherwise abstaining men; this group also includes the loss of control found after losses of blood, in anæmia and exhausting diseases; (4) the dipsomania of excess.

As a mode of treatment he recommends legal control, total abstinence in 99 per cent. of the cases, special asylums for certain cases, strengthening of the bodily health; the occasional use of drugs to allay the temporary intolerable cravings, and to supply the stomach and brain with temporary substitutes for the alcohol; and as a preventive, a careful training up of children to avoid the habit.

**Morphinism** is found in the nervous diathesis, and in persons with heredity of nervousness, insanity, or alcoholism; in all persons who feel and dread pain excessively, and in most excitable persons. Its origin is often found in its having been given or taken to relieve pain or insomnia; and so, before giving morphia, a physician should always first consider if there is any danger of a habit being set up. Treatment must consist of skilled and strong nursing, with absolute control and unremitting companionship; sudden stoppage of the drug, with the administration of bromides, wines, beef-tea, bismuth, ice, counter-irritants for the pain in the stomach and vomiting; digitalis and strophanthus for the weak and irregular heart; paraldehyde or sulphonal for the insomnia for a few nights, but not for long. If emaciation is present, then massage must be employed. The condition to be brought about must be one of good nerve tone, firm muscles, brown sunburnt skin, steady occupation, as much fat as the patient can put on, a sound moral sense, strengthened inhibition, and a dominating conviction that the drug in any dose is a poison.

## 2. Chronic cocaineism.

Falk (*Therap. Monatsheft*, 1891, No. 12) points out that the cocaine habit produces a distinct clinical picture of cachexia or bodily ruin, a moral impairment, and a pronounced mental affection. Such patients appear marasmatic, the skin is yellowish and withered, the extremities cold and perspiring; the eyes sunken, glistening, and surrounded with a dark ring, the pupils widely dilated; the appetite lost, and the digestion disturbed; salivation, with dryness of the throat; partial sensory disturbances, or total analgesia. From its paralysing action on the blood-vessels, the drug causes palpitation and breathlessness, sweating, noises in the ears, syncopal attacks, with a frequent and compressible pulse. There is nervous trembling and neurasthenia, the speech is disconnected, and there is impotence and incontinence of urine. Early insomnia, muscular twitchings, tonic and clonic convulsions,



and, finally, epileptic attacks, in which the patient may die, may all be present. The mental symptoms produced are:—Hallucinations, usually of general sensation, not unfrequently also of sight; general mental weakness, loss of memory, and unusual prolixity in conversation and correspondence. When the drug is withdrawn, we may see depression and impairment of will-power. Chronic cocainism does not protect from acute cocaine poisoning.

### 3. Chronic morphinism.

The English Lunacy Act of 1890 (*Brit. Med. Journal*, vol i., 1891, p. 1393) allows morphine and other inebriates to be received as voluntary boarders into licensed houses for the insane, with the consent of two Commissioners in Lunacy, by the simple application of the patient, without the cause being specified for which the applicant desires to be admitted. At Brooklyn, U.S.A., a house has been opened for the reception of twelve habitués of morphia, chloral, or cocaine; the treatment carried out there is by a preliminary sedation by sodium bromide and a rapid reduction of the narcotic, the period of reduction extending over ten to twelve days.

Watson (*Journ. Nerv. and Ment. Dis.*, 1891, p. 338), in a synopsis of opium inebriety, maintains that analysis of the urine is the most reliable means of diagnosing the opium or morphia habit, especially when deceit is suspected; but it must be remembered that the alkaloids of opium may not be eliminated until eight or ten days subsequently to the date of abstinence. The various forms of treatment are three. One method is the abrupt withdrawal or suppression of the drug, advocated by Livenstein. This the writer severely criticises, and says the effects are simply horrible to the patient. The second method is a rapid but not abrupt withdrawal, as recommended by Mattison, and at the same time producing a certain amount of sedation or control of reflex irritation by large doses of sodium bromide, the system being kept thoroughly under this drug for one week before any attempt is made to withdraw the opium. The writer himself prefers, however, the gradual withdrawal method. The patient must place himself under some expert in a special institution. Collapse must be treated by ammonia or alcohol; delirium, by cocaine, chloral, and bromides; vomiting, by omitting solid food, and giving hot beef extract, hot milk, beef peptonoids in a liquid form, aromatic spirits of ammonia, and bismuth; diarrhœa, by castor oil, brandy, bismuth, and sulphocarbolate of zinc. Pains in the legs are best relieved by the hot foot-bath, massage, and friction; sleeplessness and restlessness, by full doses of bromides and sometimes valerianate of ammonia. If the insomnia is without pain, sulphonal may be given; if with pain, codeine; a

hot bath before bedtime is often useful. Perfect mental quietude must be maintained. If the patient has used a morphia syringe, this must be at once removed and all opium given by the mouth.

Huchard (*Practitioner*, 1891, p. 55), at a meeting of the Société Médicale des Hôpitaux, Paris, mentioned three cases of permanent albuminuria in morphinomania, which he thinks to be due to arterial subtenion. As regards treatment, he says that a distinction should be made between morphinism and morphinomania. The latter case is cerebral and must be treated accordingly, seclusion being indicated; but in the former, the mental state is healthy, and seclusion should never be employed.

#### 4. Paraldehyde.

Mathison (*Med. Rec.*, Nov. 29, 1890) quotes the case of a young woman recovering from the chloral habit who took paraldehyde as a hypnotic and formed a habit. She remained well-nourished, but suffered from headache and disturbed accommodation; during abstinence from the drug she was apathetic and depressed, but when indulging freely she became greatly excited for a few hours, after which she passed into a profound sleep for one to three days. Complete withdrawal of the drug caused symptoms like those produced by the sudden withdrawal of morphia. At the end of a week under codeine sleep was secured, and within a month she had recovered.

### IX.—THE TREATMENT OF INSANITY.

#### 1. New Lunacy Act.

As the lunacy law ought to be thoroughly known in the treatment of insanity, it may be mentioned that a new Lunacy Act, 1891, has just become law. It is merely an appendix, as it were, of the Lunacy Act, 1890, defining and making clear many points in that measure, together with some new regulations, chiefly applicable to the regulations for justices and to the management of patients in asylums and workhouses. A point of importance to the ordinary practitioner is that it enacts that the "judicial authority" may now sign "orders for reception" not only in his special district of jurisdiction, but also out of it; and also, that any justice not specially appointed as a judicial authority may sign an order for reception provided that this order be approved by a judicial authority within fourteen days. These new rules enable reception orders to be much more easily obtained than was the case in the Act of 1890.

#### 2. Insanity and gynecology.

Robert Barnes (*Brit. Med. Journal*, vol. ii., 1890, p. 901) gave



a paper on the correlation of sexual function and mental disorder in women. He said that weakness of the mental system was very likely to be noticed at the menstrual and climacteric periods. He gave cases where treatment by replacing the uterus had caused relief of mental symptoms, and considered the question of removal of the uterus and ovaries as a means of treatment; he thought it was especially needful to make a thorough examination of the pelvic organs in puerperal mania. **Savage** said that only in a very small proportion of women was mental good brought about by gynecological treatment; that it was a question whether masturbation was a cause or effect of the mental state. He insisted on the diagnostic value of hallucinations of smell as indicating the coincidence of some affection of the uterus or ovaries, and protested against procuring abortion in the insanity of pregnancy or to avert puerperal mania. **Tuke** said he was disappointed with the gynecological treatment of insanity as instanced in American practice.

### **3. Refusal of food in the insane.**

**A. Voisin** (*Bull. Gén. de Thérap.*, Jan. 30, 1891), speaking of sitiophobia, or refusal of food in the insane, says all such symptoms as refusal of food, attempts at suicide, fear of being poisoned, ideas of mysticism, or hallucinations in the insane are accompanied by a disordered digestive tract; in fact, this is the anatomical basis of the mental troubles. He, therefore, in such cases treats the diseased stomach by washing it out with warm water previous to feeding with the tube. He says the best results occur in melancholia, and that if the first refusal of food is so treated a cure speedily results.

[The above theory appears to us more than doubtful, and we also question the efficacy of the treatment recommended. We consider that in most cases of the varieties of insanity mentioned the refusal of food and the disordered stomachs are most certainly secondary.—*Rep.*]

### **4. The private care of the insane.**

**Stedman** (*Intern. Journ. of Med. Science*, 1891, vol. i., p. 355) gives a valuable paper on the selection of cases of insanity for the different methods of private care. He points out the obvious advantages, provided the case be a suitable one, of treating a patient outside an asylum. The various methods are (1) travel; (2) home treatment; (3) specially provided private quarters (single care); (4) small private establishments for a few patients. Of course all such treatment is expensive.

Travel is good merely for those on the threshold of insanity, but bad if the disease is pronounced, or if there is the very slightest suspicion of suicidal tendency. The most suitable cases

are convalescent cases, post-febrile cases, and simple depression with insomnia; land travelling is much better than a sea voyage; a friend or physician as a companion (not a relation) is essential, and in some cases a nurse also. There must be no fatigue whatever, and high latitudes are more bracing. Sea air often converts the preliminary stage of confusion and depression into wild excitement.

Home care is a mode of treatment depending on the form of insanity, on the constitution of the family circle, the attitude of the patient to the other members of the family, and the general character of the surroundings. The patient must be seen regularly by a physician. If the patient is hostile to other members of the household, if there is suicidal tendency in the patient or his family history, then he should not be treated at home. Other cases can be more easily managed by a relative than by anyone else; acute dementia cases often merely need treating like babies, and require careful feeding and nursing. The children of the house should be sent away, especially if the mother is the patient (absolutely necessary in puerperal cases). Violent cases of the acute curable class can only be treated at home if the house is partially turned into a hospital, as in the treatment of a fever case. Milder cases of senile insanity and post hemiplegic insanity can be treated at home. In the insanity of doubt home treatment may do, but as soon as actual delusions arise asylum treatment is essential. Chronic degenerative insanity, with delusions of suspicion, hysterical insanity and dipsomania, must certainly not be treated at home.

The single-care treatment is perhaps better than the home treatment, and consists of placing the patient in the house of a physician, or in a private house taken by the patient's friends. The attendants must be under the control of the physician. In this way even excitable and noisy patients may be treated.

Small private asylums are simply intermediate between single care or home treatment, and the treatment in large asylums, where, perhaps, less individual attention can be given to each case.

The situation of the above abodes as regards the nearness of friends is important, as in some cases such a nearness is beneficial, but as a rule, however, is highly detrimental. Removal home during convalescence is excellent in some cases, and in the chronic insane an occasional change as in the boarding-out system is of benefit.

#### **5. Collapse after acute mania.**

Mercklin (*Centralbl. für Nervenheilk. und Psychiat.*, 1891) reports that in the collapse following unrelieved severe mania he



has used, with the best results, a subcutaneous injection of warm salt solution; all bad symptoms disappeared in a few hours.

## X.—SPECIAL ARTICLES.

### 1. Action of strychnine on the cerebral cortex.

Biernacki (*Therap. Monat.*, Aug., 1890) has performed experiments on rabbits' brains to determine the action of strychnine on the cortex. The animal was trephined and then allowed to rest until the electrical excitability of the centres was constant. In the first series of experiments the strychnine was given subcutaneously, and in all the cases the electrical excitability was tested, when it was found to be much diminished, as much stronger currents applied to the motor centres were required to produce any movements. The onset of the effect was gradual, but the effect itself lasted some time. In the second series of experiments a solution of strychnine (.05 to 4 per cent.) was applied directly to the cortex. The first effect with the strong solution was pallor of the cortex (soon disappearing), and great depression of the cortical sensibility. After large doses the movements produced were trembling in character. The effect was much more gradual in action than occurs with morphia or cocaine locally applied to the cortex. The signs of cortical depression came on when the cord showed irritability, and Biernacki thinks that the drug does not act directly on the motor centres, but depresses the cortex by stimulating the cord. He thinks that this depression of the cortical irritability is the explanation of the good effects of strychnine in dipsomania, epilepsy, and certain forms of insomnia; he recommends its use in all forms of cortical irritation.

### 2. Uses of *cannabis indica*.

Suckling (*Brit. Med. Journal*, vol. ii., 1891, p. 12) says there is a form of insanity more common in women than in men, caused by mental worry; they are depressed and apprehensive, with a mental confusion like acute dementia. He states that they can be cured in a few weeks by giving 10 minims of the tincture of Indian hemp three times daily with iron and strychnine, complete rest, and plenty of food. He also finds *cannabis indica* of great use in melancholia and mania, and in chorea when arsenic has failed (when it may be combined with chloral). In migraine, a pill of  $\frac{1}{4}$  grain of the extract, with or without  $\frac{1}{4}$  grain of phosphide of zinc, often immediately checks an attack, or, if given twice a day continuously, the severity and frequency of the attacks are lessened. It is also a valuable gastric sedative

in gastric ulcer and gastrodynia, when it may be combined with nitrate of silver. It also acts as a useful hypnotic.

Aulde (*Therap. Gaz.*, vol. vi., No. 8, 1890, p. 523) says cannabis indica is excellent in cases of neuralgia, in early delirium tremens, and in intestinal colic. The tannate of cannabis indica is not so good in many cases, except as a hypnotic in hysteria, where it is better than chloral or morphine.

### 3. The treatment of dreaming.

Macfarlane (*Edinb. Med. Journal*, No. 280, p. 993, May, 1891) says the cure of dreaming consists in rendering the sleep more perfect by securing equality of repose in the cerebral cells and arresting the molecular activity that is inseparable from mental operations. The cause must first be accurately diagnosed. If depending on sensory stimuli, the conditions of sleep, as regards warmth, ventilation, light, etc., must be examined, together with the state of the skin and emunctories; the excessive use of tea, alcohol, and tobacco must be forbidden. If the dreaming still continues, then drugs may be carefully administered. If depending on peripheral irritation or excitement, then lessen the conductivity of the nerves by aconite, belladonna, atropine, hyoscyamus, cannabis indica, camphor, valerian, oil of camomile, sumbul, or bromides. If due to an alteration of the quantity or quality of the cerebral blood supply, then give tonics. Sometimes hypnotics overcome the dream-habit, but they must be stopped as soon as possible; chloralamide is good in fairly large doses if the arterial tension is high. In children bromides are reliable; in the aged, stimulants, camphor, hops, or sumbul.

### 4. The treatment of polyneuritis.

Mendez, of Buenos Ayres (*Journal of Mental and Nerv. Dis.*, p. 655, Oct., 1891), recommends at the onset of polyneuritis salicylate of soda to lower the temperature and relieve the pain. If the pain is more severe, then opium or morphia is necessary, with anodyne liniments to the skin. Internally, iodide of potassium, with tonics and nutritious diet, combined with warm, vapour or sulphur baths, with massage and electricity after the disappearance of the hyperæsthesia.

### 5. The treatment of meningitis.

Barr (*Therap. Gaz.*, p. 80, Feb. 16, 1891), in treating meningitis keeps the patient free from reflex disturbance by putting him in a dark, noiseless room on a water bed, only lightly clothed, the room well ventilated, and at a temperature of 60° F. As antipyretics he uses a large ice-cap or Leiter's tubes containing ice-cold water applied to the shaved head; the continuous bath at a temperature of 90° to 95° F. is not so good here as in enteric



fever. Antipyrin may be given occasionally, but he prefers the free use of the carbonate and acetate of ammonia. If there is any fear of thrombosis of the cerebral sinuses he gives ammonia either in iced water or by inhalation of ammoniated chloroform. If much vascular excitement ensues he uses antimony. In the early stage blisters to the nape of the neck may be serviceable; in the later stage, with much cerebral effusion and general paresis and, perhaps, subnormal temperature, the liquor epispasticus may be painted over the whole scalp.

For the vomiting, apply sinapisms to the epigastrium, and soda with aromatic spirits of ammonia internally; hiccough is best relieved by hypodermic injections of morphia and atropia. He gives in adults, for the cerebral excitement and insomnia, opium and salicylic acid. He discredits chloral, sulphonal, paraldehyde, and urethane, and discards iodides and bromides. The constipation is best relieved by calomel and opium, cardiac excitement and feeble pulse by opium digitalis and quinine, the convulsions by chloroform. If there is a suspicion of syphilis, order mercury and iodides. In basilar meningitis with a tendency to bulbar paralysis, atropine should be given. The diet should be the blandest possible, such as milk, farinaceous foods, and butter. Alcohol he forbids.

# DISEASES OF THE STOMACH, INTES- TINES, LIVER, ETC.

BY ROBERT MAGUIRE, M.D. (LOND.), F.R.C.P.,

*Physician to Out-Patients, St. Mary's Hospital; Assistant Physician, Hospital for  
Consumption and Diseases of the Chest, Brompton.*

## I.—INFLUENCE OF DRUGS, ETC., ON DIGESTION.

WE are in the habit of prescribing a variety of drugs in different gastric disorders, and almost entirely empirically. Until the functional pathology of digestion is fully worked out, the basis of scientific treatment is, of course, wanting: of late years, however, and mainly by the labours of the German school, we have arrived at a more definite knowledge of the conditions of the digestive juices in disease. We still lack information as to the precise effect upon these juices, both in health and in disease, of the drugs and foods we use. Progress, however, is being made in this direction, and below will be found a *résumé* of the work of the year.

### **1. Sulphate and hydrochlorate of quinine.**

Bülin (*Med. Chron.*, July, 1891, vol. xiv., No. 4, p. 292; *St. Petersburg Inaugural Dissertation*, 1891, No. 67, p. 68) has investigated the action of quinine on gastric digestion. The doses varied from  $1\frac{1}{2}$  to 2 grains, given six times daily, the last dose being administered one or one and a half hours before a test meal, to 5 or 10 grains given once a day, and again one or one and a half hours before a test meal.

The following are the results obtained:—

1. Hydrochlorate of quinine in 10-grain doses manifested no retarding influence on gastric digestion. Similar doses of the sulphate retarded the earlier processes of digestion.
2. Both drugs in large doses increased the general acidity of the gastric juice, and the amount of free hydrochloric acid.
3. Both increased the absorptive power of the stomach.
4. Neither produced any ultimate effect on the peptonisation of proteids, or on the energy of rennet ferment.



5. Smaller doses, *i.e.*, 5 grains, produced a similar but less constant and pronounced effect.

6. Tonic doses, *i.e.*, 1 to 2 grains, produced a favourable effect on gastric digestion.

7. The hydrochlorate, being more soluble and more easily absorbed, should be preferred to the sulphate of quinine.

8. The addition of hydrochloric acid to aqueous solutions of quinine is practically of importance, since it counteracts the retarding effect of neutral salts of quinine on the digestive processes.

## 2. Strychnine.

Dr. Gamper (*Lancet*, 1891, vol. i., p. 897) made a series of observations on the action of nitrate of strychnine on the stomach in four healthy people.

He found that strychnine increased the amount of gastric juice and of free acid. It hastened absorption, and strengthened the muscular movements of the organ. Moreover, its effects continued for some time after its administration was stopped.

## 3. Bitter and aromatic substances.

Prof. G. Mancione (*Brit. Med. Journal Suppl.*, 1891, vol. ii., p. 7; *Riforma Medica*, June 8, 1891) finds that bitter and aromatic substances increase the secretion of gastric juice, shorten digestion, and render the movements of the stomach more active. They bring about these results chiefly by stimulation of the endings of the vagi in the stomach, thus producing a reflex effect upon the secreting glands.

## 4. Alcohol.

R. Wolffhard (*Münchener Med. Wochens.*, 1890, No. 35; *Centralblatt für Medicinischen Wissenschaften*, Jan., 1891, No. 3, p. 47) has shown by experiments with alcohol on digestion—

1. That absolute alcohol interferes with digestion.

2. That 60 grammes of a 50 per cent. solution of brandy appears to interfere with the digestion of starch, but hastens the digestion of flesh; that 90 grammes of a 50 per cent. solution of brandy taken during digestion hinders all digestion; that 30 to 40 grammes of a 50 per cent. solution of brandy hastens digestion.

3. Red or white wine taken before or with meals hastens digestion.

Dr. Blumenau (*Brit. Med. Journal Suppl.*, 1890, vol. ii., p. 30; *Deutsche Med. Zeit.*, No. 43, 1890) experimented similarly. One hundred cubic centimetres of a 25 or 50 per cent. solution were given ten to twenty minutes before a meal consisting of soup, a cutlet, and bread. He found that—

1. For the first three hours after the administration of the

alcohol, stomach digestion was diminished, this probably being due to the presence of lactic instead of hydrochloric acid. The effect was less marked in those accustomed to taking alcohol.

2. Strong solutions acted more powerfully than weak ones.

3. In the fourth, fifth, and sixth hours of digestion, hydrochloric acid was rapidly formed and the food quickly digested. Alcohol rendered the secretion of gastric juice more abundant and more prolonged.

#### 5. Alcohol and creasote.

G. Klemperer (*Zeitschrift für Klin. Medicin*, Bd. xvii., Suppl. Hft.; *Centralblatt für Klinische Medicin*, Oct., 1890, No. 43, p. 790) has experimented on the influence of alcohol and creasote on the secretion and motor activity of the stomach. His results show that moderate doses of alcohol do not always produce a definite increase of the gastric secretion. The same is the case with creasote. Creasote pills seem to exercise a favourable influence on the gastric mucous membrane, but the number of experiments was too small to enable a definite statement to be made. Both drugs exercise an important stimulating influence on the motor functions of the stomach.

#### 6. Various drugs.

L. Wolff (*Zeitschrift für Klin. Medicin*, Bd. xvi., Hft., p. 222; *Centralblatt für Klinische Medicin*, Nov., 1890, No. 48, p. 870) finds that alcohol in the form of brandy and beer (*Münchener Spatenbräu*), in small doses (20 to 30 c.cm. of brandy), exercises a slightly favourable influence on the secretion of gastric juice; in large doses alcohol hinders secretion. Coffee decreases the total acidity, the secretion of HCl, and the formation of peptones. Nicotin, in three persons on which it was tried, increased the gastric secretion. Strychnine also increases the amount of secretion. Bile has no effect. Salt hinders the secretion of HCl. Carlsbad water has no effect on the secretion of the stomach. Hydrochloric acid produces no recognisable result on the acid secretion of the stomach, but seems to exercise a favourable influence on the formation of peptones.

[Thus, overlooking the slight discrepancies in the results, it is seen that we have substances like the simple bitters, which, by a slightly irritative action, stimulate the total secreting power of the stomach without interfering with the action of the juices. Other more special drugs, such as quinine and strychnine, have a similar action, since they, too, are bitters. Strychnine, however, has a tonic action upon the muscular coat of the stomach, and should, therefore, be of use in cases of dilatation from muscular atony. This effect seems to be wanting in the case of quinine.



The remark in Bünin's paper upon the superior solubility of the hydrochlorate of quinine is of importance. In fevers the acid of the gastric juice is deficient or wanting, yet the sulphate of quinine is often given in such cases in the solid form. There must be difficulty in its absorption, although doubtless some of it is absorbed; but the effect would be greater if a more soluble preparation were used. It must not be concluded that substances like tobacco and coffee, which delay digestion and absorption, are necessarily harmful. As Sir William Roberts has shown, this action may be distinctly needed, so as to allow of a more gradual assimilation of foodstuffs.—R. M.]

## II.—DIETETICS IN HEALTH AND DISEASE.

Sir W. Roberts (*Brit. Med. Journal*, 1890, vol. ii., p. 883) divides the cases in which advice is sought on the subject of diet into two groups. The first group includes patients suffering from fever or organic disease, which necessitates special dietetic treatment and the giving up of the ordinary avocations in life. The second, and more numerous group, includes those patients who suffer from no organic disease, and who are able to pursue their ordinary business. Sir W. Roberts points out that in the first group of cases the advice given by medical men shows a fair amount of unanimity. In the second group of cases there are not only great discrepancies, but, in a large number of cases, absolute contradictions. He thinks that, accompanying and subservient to the development, there has been, so to speak, an evolution in diet, and that a survival of the fittest has resulted. He contends, therefore, as a result of this, that there is in the food habits of mankind a natural dietetic standard, which contains elements best suited to our requirements. The fact that this has been lost sight of by medical men is largely responsible for the absence of anything like unanimity in their advice on the subject of diet.

The author, as the result of an examination of the dietetic customs of civilised races, thinks that diets tend to consist of two elements: one subverting the needs of general nutrition, the other the needs of the nutrition of the brain and nervous system. In the former are included such articles of diet as bread and other cereals, dairy products, leguminous seeds, fruits, vegetables, fish, and bread; in the latter, tea and coffee, alcohol, and possibly tobacco.

One of the most characteristic features of our national diet, Sir William points out, is its diversity, both in quality and

nature. The deduction to be made is that in drawing up a scheme of diet we should scrupulously avoid anything like a sad and monotonous uniformity. Why, Sir William asks, should tea and coffee be so often forbidden? Why should the harmless and much-liked potato be prohibited? Again, why is sugar forbidden, and farinaceous food-stuffs allowed? Beef is stopped, and mutton is allowed to be taken. All these prohibitions and restrictions, according to the author, are unscientific and often illogical.

He thinks that in the regulation of the diet the arbitration of an experienced palate (and what palate is not?) is worthy of careful consideration. There are palates, however, whose judgments are not to be relied on, and in these cases the medical man must assist their owners to the path which leads to wisdom and a good digestion. Sir William considers that a very good rule in the regulation of the diet, in the absence of any special indication, is to put the two following questions to the patient in regard to any particular food, viz., "Do you like it?" and "Does it agree with you?" An affirmative reply to both questions is sufficient to enable the medical man to sanction the taking of the article of food in question. Sir William Roberts then points out the advantages that are often to be gained from a temporary change of diet, the direction of the change being suggested by the particular food-habits of each patient. He further suggests that it is better to lessen the quantity of any particular food taken than to entirely prohibit its use. As a rule, the stomach is able to deal with the food when reduced in quantity, and the symptoms are relieved. In some neurotic and hysterical patients, the author thinks that restrictions in the choice of food, and, if necessary, a certain amount of coercion in the matter of how much food is to be taken, are desirable. In conclusion, he points out that with advancing years a certain amount of revision is necessary, to meet the requirements of the altered type of nutrition which naturally accompanies advanced age. As a rule, the indication is generally to restrict the quantity of food taken. In some cases the appetite of youth is retained, and the excretory and other organs concerned in the digestion and assimilation of food are unable to deal with the quantity of food taken. Sir William condemns the adoption of hard-and-fast lines in the regulation of the diet, and urges a careful consideration of the requirements of each particular case, combined with a large infusion of common-sense.

Boas (*Brit. Med. Journal*, Oct. 18, 1890; and *Deutsche Med. Zeitung*, No. 43, 1890) thinks that in deciding on the diet, in cases of stomach and intestinal disorders, three points must be



attended to, viz. :—(1) The constitutional condition and state of nutrition of the patient. (2) The surroundings and customary habits of the patient. (3) The actual disturbance of digestion present in the particular case.

Dr. Goodhart (*Brit. Med. Journal*, 1890, vol. ii., p. 1036) cordially endorses the remarks of Sir William Roberts in his address on dietetics. He insists that many of the so-called cases of dyspepsia in women are really neuroses, and can be cured by tonics and a largely-increased diet.

J. F. Palmer (*Brit. Med. Journal*, 1890, vol. ii., p. 1091) cordially agrees with Sir W. Roberts in his remarks on the above subject, and points out various other anomalies in the fashionable dietetic dicta of the day.

[Sir William Roberts's remarks are so original and sweeping that it would not be surprising if they were closely criticised, and below are abstracts of some of the replies to his address which have been published. There can be no doubt, however, that the main reasoning of this paper is correct, and medical men will do well to give it their careful attention.—R. M.]

Edmunds (*Brit. Med. Journal*, 1891, vol. ii., p. 982) disagrees with several of the observations, and deductions therefrom, made by Sir W. Roberts in his address on dietetics. He thinks that the analogy drawn by Sir William between the food-habits of the squirrel, blackbird, etc., and those of man, is misleading, because civilised man can control to a large extent the conditions under which he lives, and these animals cannot. He asks for the evidence on which the statement, that different foods subserve the nutrition of different parts of the human organism, rests. He very much questions whether all the starch in farinaceous food is converted into sugar in the alimentary canal, and gives evidence that this is not the case. He thinks that the questions suggested as useful in the sanctioning of any particular article of diet would lead in many cases to grave errors. He regards the palate as quite unfit in many cases to settle the question of the taking of particular kinds of food.

Dr. N. E. Yorke-Davies (*Brit. Med. Journal*, vol. ii., p. 1161) also dissents from several of Sir W. Roberts's observations on dietetics. He thinks food is often prepared in order to entice the palate rather than to agree with the stomach. He considers the statement that different articles of diet subserve the nutrition of different parts of the organism not substantiated by facts.

## III.—FOOD-STUFFS.

**1. Sterilised milk.**

Milk is so often a vehicle for the conveyance of disease-germs that its sterilisation is now extensively practised. It is important, therefore, to investigate how its nutritive value is affected by the treatment it undergoes.

**Dr. H. Koplik** (discussion at American Medical Association, *Lancet*, 1891, vol. ii., p. 27), discussing the question of the sterilisation of milk from a bacteriological point of view, considered that the method introduced by Hueppe, in which steam was the active agent, was the most reliable. He further pointed out that milk sterilised by the use of steam should be used at once.

A paper was read on the "Chemistry and Clinical Value of Sterilised Milk," by Prof. Leeds and Dr. Davis.

**Prof. Leeds** showed, as the result of a chemical examination of sterilised milk, that a starch-liquefying ferment was destroyed, that lact-albumen was partly coagulated, and caseine rendered less digestible by rennet, pepsine, and pancreatine. Butter-fat was sometimes separated, and the changed albuminoids hindered the assimilation of fat. Milk sugar was destroyed by long heating. He recommended the use of milk rendered feebly alkaline with lime-water, and treated with pancreatine at 155° F. for six minutes. It should be raised to boiling-point for a moment, if not for immediate use.

**Dr. Davis's** experience of the use of sterilised milk in infancy indicated that acute gastro-enteritis was avoided at the expense of proper nourishment. Constipation was produced by its use, and post-mortem appearances characteristic of atrophy of the digestive tract.

**Dr. J. Lewis Smith** showed that too much care could not be taken in the methods employed in straining milk.

**2. Fats.**

**Prof. N. Zuntz** (*Therapeut. Monatshefte*, Oct., 1890, and Suppl. *Brit. Med. Journal*, 1891, vol. i., p. 78) has experimented on himself and on animals with regard to the dietetic value of the fats of chocolate.

Zuntz concludes that very large quantities of chocolate can be taken without affecting the digestive organs, and, further, that the fats in chocolate are very easily assimilated.

**3. Digestion of fat.**

**Minkowski and Abelman** (*Lancet*, 1890, vol. ii., p. 1112) have investigated the effect of the removal of the whole and of part



of the pancreas on the absorption of different food-stuffs, and especially of fat.

The following is a summary of their results :—

(a) The whole of the pancreas being removed :—

1. Meat, bread, and milk, representing 7 to 24 grammes of nitrogen daily (= 45 to 153 grammes of albumen) were given, and 44 per cent. on the average was absorbed. The extremes varied between 22 and 58 per cent.

2. Starchy compounds representing 151 to 176 grammes per diem, with milk and bread were given, and 57 to 71 per cent. was absorbed.

3. Fats in the form of butter, olive-oil, and lipanin, representing from 36 to 78 grammes per diem, were given, and the whole of the fat reappeared in the fæces, chiefly in the form of fatty acid and partly in the form of soaps.

4. In milk diet 28 to 53 per cent. of fats were absorbed.

(b) Part of the pancreas being removed :—

1. Of nitrogenous diet, 54 per cent. was absorbed. The extremes were 40 to 83 per cent. The lowest amount absorbed was always associated with the most imperfect absorption of fat. The albumen of meat was better absorbed than that of milk.

By the addition of fresh pancreas the amount of nitrogen absorbed rose to 74 to 78 per cent. of that ingested.

Of starchy food, 77 to 78 per cent. was absorbed.

Of fats, 29 to 59 per cent. was absorbed.

Of fats plus fresh pancreas, 48 to 73 per cent. was absorbed.

Of milk, 65 to 80 per cent. was absorbed.

Hence it would appear that all fats except those of milk require the presence of pancreatic juice to enable them to be absorbed.

#### IV.—NUTRIENT ENEMATA.

Huber (*Medical Chronicle*, July, 1891, vol. xiv., No. 4, p. 298, and *Deut. Archiv. f. Klin. Med.*, March 5, 1891) recommends the addition of 15 grains of chloride of sodium to each egg given as a nutrient enema. By this addition he thinks 12 per cent. of the food is absorbed.

N. M. Jones-Humphreys (*Lancet*, 1891, vol. i., p. 366) describes a new apparatus for feeding by the rectum. He employs a small funnel, attached to which is a piece of elastic tubing, one-eighth of an inch in diameter, and about one and a half foot in length. The elastic tubing is connected with a piece of glass tubing four inches in length, this in turn being joined to an ordinary flexible catheter. The advantages of the apparatus, he thinks, are :—

1. That it is simple, cheap, and easily made.
2. That when the catheter is introduced into the bowel the patient experiences no discomfort.
3. That, after its use is once demonstrated, it can be used by an inexperienced person, and thus regular feeding is assured.
4. That the fluid passes into the bowel slowly, and its absorption is consequently increased.

### V.—PRISON DIETARY.

Drs. Krohne and Leppmann (*Lancet*, 1890, vol. ii., p. 803) demonstrate as a result of their investigation into the dietary of the convict prison at Moabit, near Berlin, that the regulation diet contained an excess of carbo-hydrates (677·54 grammes instead of 500), and a deficiency of fat (24·51 grammes instead of 50).

(For a discussion of the question of a normal diet, consult Foster's "Text-book of Physiology," fifth edition, part ii., pp. 801—803, and pp. 833—846.)

As the result of experiments, Drs. Krohne and Leppmann recommend that animal albumens could be supplied most cheaply in the form of skim-milk, cheese, and herring. Beef tallow and suet provide a cheap fat. They also recommend a daily allowance (up to ten grammes) of coffee, and warmly advocate the use of fish as an article of prison diet. They insist also on the adequate seasoning of the food.

### VI.—GENERAL THERAPEUTICS OF DYSPEPSIA.

#### I. *Cannabis indica*.

Prof. G. Sée (*Lancet*, 1890, vol. ii., pp. 261—592, 631, 632; *Deutsche Medicinische Wochenschrift*, Aug. 14 and 21, 1890) publishes the results of his investigation into the action of *cannabis indica* on the different forms of indigestion. He finds that the fatty extract is the most useful form in which to use the drug, which should be given in  $\frac{1}{4}$ -grain doses three times a day. If given in greater quantities a toxic effect is produced. It is most efficacious in non-organic diseases of the stomach, and is equally applicable to two groups of cases, viz., those in which the composition of the gastric juice is altered, and those in which there is no chemical modification of the juice.

In all cases in which the drug was given pain was relieved and the appetite re-established. If the hydrochloric acid is greatly in excess of the normal, Prof. Sée recommends the addition of large doses of bicarbonate of soda, given four hours after meals.



*Cannabis indica* has no effect on the production of gas, but it helps its elimination and diminishes heartburn. It has no effect on atony or dilatation of the stomach, and is useless in hypochondriacal, hysterical, or neurasthenic conditions. Generally speaking, the action of *cannabis indica* on the stomach is a sedative one.

Dr. C. W. Suckling (*Brit. Med. Journal*, vol. ii., p. 12, 1891) also considers Indian hemp a valuable gastric sedative in cases of gastric ulcer and gastrodynia.

## 2. Massage.

Dr. Cséri (*Lancet*, 1890, vol. ii., p. 632; *Wien. Med. Woch.*) describes a peculiar kind of massage of the stomach, attended with beneficial results in cases of chronic dyspepsia. The treatment is begun while the stomach is full, about two or three hours after meals. The patient lies on his back, with the knees drawn up and the mouth open. Massage of the abdominal wall over the stomach is performed for ten or fifteen minutes. The massage is applied from the fundus of the stomach to the pylorus, and at first is conducted gently and superficially, later, with gradually increasing energy. The treatment is followed by a feeling of warmth and comfort, gases are dispelled, and the stomach contents helped into the duodenum. Ultimately gastric secretion is increased, and muscular power is improved.

## VII.—THE GASTRIC ACIDS IN DYSPEPSIA.

[As readers of the "Year-Book" know, the behaviour of the acids of the stomach, in various conditions, has received great attention during the last few years. The results obtained by Dr. McNaught and others in this country, no less than those of a crowd of German observers, have an important bearing upon therapeutics, in addition to great scientific interest. During the last year there have again been several communications upon this subject which are well worthy of attention. First, the detection of the various free acids, and especially of hydrochloric acid, must be considered, and for this purpose the older reagents—the use of which was subject to many fallacies—have now been replaced by others more reliable. The paper by Günzburg, abstracted below, refers to this.—R. M.]

### 1. Hydrochloric acid in digestion.

R. von Jaksch (*Ztschr. f. Klin. Med.*, xvii., p. 383; *Centralblatt für die Medicinischen Wissenschaft.*, No. 41, p. 744, Oct., 1890) finds that the amount of hydrochloric acid in the stomach after the taking of food reaches its maximum in from one to three hours. The rate of increase is not uniform, but shows frequent

intermissions at variable times. The secretion of hydrochloric acid is most rapid after fleshy food, slowest after vegetable food. The greatest absolute quantity of hydrochloric acid was observed after milk food (0.1615 grammes of hydrochloric acid in 100 centigrammes of gastric juice), the next largest quantity after fleshy food; the least quantity was found after vegetable food. Digestion is soonest completed after fleshy food, in small quantities; its duration is longest after milk food.

## 2. Phloroglucin-vanillin and allied reagents.

Günzburg (*Med. Chron.*, vol. xiii., No. 4, p. 305, Jan., 1891; *Centralblatt f. Klin. Medicin.*, No. 50, Dec. 13, 1890) has made experiments as to the sources of error in testing for free hydrochloric acid with various reagents. The substances on which he experimented, and which were likely to cause error, can be divided into the three following classes:—

1. *Inorganic salts, excepting chloride of calcium.*—All the four reagents used gave a red colour with these salts. The red colour seemed to be a product of continued evaporation and boiling. No clinical significance is to be attached to this, for Günzburg has never been able to obtain the colour when, with his reagent, he used a mixture of common salt with a gastric juice free from hydrochloric acid.

2. *Organic salts and mixtures of these with acids.*—With these substances resorcin-vanillin and Boas' reagent gave a red colour, which might lead to error. Gastric juice free from hydrochloric acid and mixed with lactate or acetate of soda gave the reaction with phloroglucin-vanillin, and this is of clinical importance.

3. *Chloride of calcium, or a mixture of this with organic acids, gives a reaction with phloroglucin and indol-vanillin.*—This is probably of no clinical significance, as over 2 per cent. of the salt must be present in gastric juice free from hydrochloric acid to give the reaction.

Günzburg, in conclusion, thinks phloroglucin the best reagent to use in testing for free hydrochloric acid.

[This is the best reagent, and is most easily applied. Another, which is almost equally reliable, is that of Boas, consisting of resorcin, sugar, and alcohol. Its only drawback is that the colour produced thereby is not so definite as that from the phloroglucin and vanillin, and the colouring of the sugar by excessive heat—as shown by the reviewer before the Harveian Society during the year—might be confused by a careless observer with the proper colour of the reaction. The application of methods for detecting free hydrochloric acid at various stages of digestion is shown in the following important paper.—R. M.]



## VIII.—ACID DYSPEPSIA.

Prof. D. J. Hamilton (*Brit. Med. Journal*, 1890, vol. ii., p. 321) gives an account of the causes of acid dyspepsia. He mentions the absence of anatomical lesion in the majority of cases of chronic dyspepsia, and draws the conclusion that, in the first instance, gastric dyspepsia is a purely functional disorder. He points out that in the course of natural digestion two acids make their appearance in the stomach, viz., lactic acid and hydrochloric acid. Under pathological conditions, butyric acid, other volatile acids, and acid phosphates may be found.

He quotes from Rothschild (*Virchow und Hirsch's Jahresb.*, 1886, i., p. 146), showing the amount of acidity during different stages of the digestion of meat by a healthy man. The acidity gradually increases up to the third hour after the ingestion of meat. According to Ewald and Boas, three stages are distinguishable. During the first fifty minutes of digestion, lactic acid is alone present; for the next ten to thirty minutes lactic acid and hydrochloric acid are present; after this, hydrochloric acid alone is found.

The lactic acid arises from the fermentation of carbohydrates, and directly from the meat consumed. The cause of its disappearance is not fully understood. According to Prof. Hamilton, the causes of acid dyspepsia may now be enumerated as follows:—

1. The lactic acid stage of digestion may be prolonged, owing to the presence of an insufficient quantity of hydrochloric acid.
2. Lactic acid may be formed in too great quantities from the carbohydrates of the food, as the result of fermentative changes. This frequently follows the ingestion of too large a quantity of grape sugar. The fermentation often goes on to the formation of butyric acid. The fermentation is probably permitted by deficiency in the quantity and imperfect quality of the gastric juice.
3. Excess of hydrochloric acid. The most common cause of acid dyspepsia is to be found in one of the first two causes enumerated.

Prof. Hamilton gives an exhaustive account of the methods of detection and quantitative estimation of the different acids found in the stomach, for which reference must be made to the original address.

J. C. Taylor (*Lancet*, 1890, vol. ii., p. 1212) relates a case of a man who for two years and a half suffered severe pain of a paroxysmal character in the epigastric and left hypochondriac regions, totally unaffected by treatment. The pain was not affected

by food, and was, as a rule, worst at night. All remedies were ineffectual in relieving the pain, and, finally, hypodermic injections of morphia were resorted to. The pain was by this means partially relieved. Mr. Taylor then tried feeding by nutrient enemata for one day, with great relief; but the patient insisted on taking a little weak beef-tea after twelve hours' abstinence from food, and this produced an attack of the most excruciating pain. Next day an attack of equal severity was brought on by drinking cold water. Sixty-grain doses of bicarbonate of soda were then given, with immediate relief.

The hypodermic administrations were stopped, and sixty grains of bicarbonate of soda were given each time the pain recurred. The result was always the immediate relief of the symptoms. The remedy had to be administered most frequently during the night. Sulphonal, given at night, had the effect of producing sleep and of obviating the necessity of giving the antacid. After about a month of this treatment the patient was given three-minim doses of carbohc acid three times a day after food. The patient then made an uninterrupted recovery.

[Although the case above reported is styled one of hyperæsthesia of the stomach associated with excessive formation of acid, I cannot but think that it may have been one of gastric ulcer. This disorder is sometimes a cause of acid dyspepsia—some say, is produced thereby. The pain complained of by this patient was considerably more than usually occurs in simple acid dyspepsia; but if a gastric ulcer were present in addition, the pain would be greatly relieved by antacids, as was the case above.—R. M.]

#### **Lack of acid in dyspepsia.**

M. Georges (*Brit. Med. Journal*, 1890, vol. ii., p. 29, Suppl.; *Revue Médicale de l'Est*, Sept. 1, 1890) experimented on the digestive powers of natural and artificial gastric juice. He got the best results with a 0.4 per cent. solution of hydrochloric acid, in the proportion of 40 cubic centimètres of this solution with 8 centigrammes of pepsin. In his experiments on natural juice he found that in eight cases of chlorotic anæmia, examined on eighteen occasions, the contents of the stomach had no digestive power. The addition of pepsin did not in any way modify the digestive action; but the addition of hydrochloric acid (0.4 per cent. solution) had a very marked effect in increasing the digestive action in twelve cases, but was without effect in eight. He also experimented on ninety-two specimens of gastric juice, obtained from fifty-two different cases. He concludes that pepsin is useless where dyspepsia is due to some primary or secondary disturbance in the gastric secretion, while hydrochloric acid is of great service.



## IX.—GASTRALGIA.

Dr. C. N. Biss (*Practitioner*, July, 1891, p. 25) discusses the importance and difficulty of making a diagnosis of gastralgia. The difficulty in making a diagnosis lies in the fact that gastric symptoms, such as pyrosis, nausea, etc., are so often associated with the neuralgic pains. Dr. Biss lays stress on the following points, which are of great assistance in making a differential diagnosis between gastric neuralgia and other gastric disturbances. The sufferers are generally women, occasionally men, between the ages of twenty and forty-five. They are generally nervous, often with a well-marked neurotic inheritance, and frequently giving a history of worry or overwork. The pain complained of is often described as of a "grinding" nature; it moves from place to place, and the attacks of pain are usually recurrent and cyclical. Its striking feature is its "gusty" character. Pain is often brought on by food, but may occur when the stomach is empty. It differs from that of gastric ulcer, with which disease gastralgia is most likely to be confused, in that it comes on only some little time after the ingestion of food.

The treatment of gastralgia may be arranged under four heads, viz., moral, hygienic, dietetic, and medicinal.

It is of great importance that the patient should be convinced that he is not a dyspeptic, in order that he may not think it necessary for him to submit to stringent dietetic dicta. Avoidance of worry and strain is to be enjoined. Warmth is of the greatest importance to patients suffering from gastralgia; woollen underclothing must be worn. Rest must be insisted on. The diet must be made suitable to each particular case, and should be as liberal as possible. The quantity of tea, and possibly of alcohol, may require restriction. Dr. Biss has found the following drugs most useful, and the order given is that of their merit:—Opium, coca, strychnine, iron, quinine, and cod-liver oil.

[The treatment by *cannabis indica* in such cases, as reported in a section above, may be also recommended.—R. M.]

## X.—GASTRIC ULCER.

Dr. Saundby (*Lancet*, 1891, vol. i., p. 353) describes the treatment in cases of gastric ulcer which he has found to be very successful. He enumerates eleven cases of gastric ulcer completely cured, and gives details of two typical cases to illustrate his treatment. The treatment employed is as follows:—If there is hæmatemesis, or a

recent history of it, he gives the patient ice to suck, and feeds by the bowel for a few days. He then orders at first half an ounce of milk and lime-water every hour, with a mixture containing sulphate of iron, 5 grains; sulphate of magnesia, 1 drachm; sulphuric acid, 10 minims; peppermint-water, 1 ounce—to be taken three times a day. If pain and vomiting cease under this treatment, he doubles the quantity of milk and lime-water. Then the diet is changed—gradually, but as rapidly as possible—to soft bread and milk, followed by chicken, custard, and eggs, and so on until the patient is able to take ordinary diet. Under this treatment only one case had a relapse.

Dr. E. P. Hershey (*Medical News*, Aug. 8, 1891) reports three cases of gastric ulcer treated most successfully with ice-cream. The treatment with ice-cream first suggested itself in the case of a girl who vomited every kind of food, and with whom all attempts at rectal alimentation had failed. This girl took quantities of ice-cream, varying from 1 to 3 quarts in the twenty-four hours. At the end of two months she had gained twenty-four pounds in weight and was nearly well. Solid food was then tried, and the patient made a good recovery. The second and third cases had an equally successful termination. Dr. Hershey lays stress on two points, one being that the ice-cream must be pure, the other that it should be used quite freshly made.

[There can be no doubt that the best treatment for gastric ulcer is the prohibition of food by the mouth and the administration of nutrient enemata. But it must be remembered that the great majority of patients who suffer from gastric ulcer are unaware of the gravity of their condition, and cannot be convinced of it. They refuse, especially if females, to submit to be fed solely by the bowel for some time. Possibly one of the best things which can happen to such a patient is the occurrence of severe hæmatemesis, which frightens the patient and causes her to obey any directions. After the occurrence of such severe bleeding, on no account must food be given by the mouth, as recognised by Dr. Saundby. I should be disposed to think not unfavourably of the treatment by ice-cream. The cold food will allay the tendency to vomiting, while the milk food would sufficiently nourish the patient.—R. M.]

## XI.—GASTRO-ECTASIS.

M. Dujardin-Beaumetz (*Practitioner*, Nov., 1890, No. 272, p. 136; *Berlin. Klin. Wochenschr.*, No. 31, 1890) discusses the symptoms which characterise neurasthenia of gastric origin. These are alterations of the gastric and intestinal functions,



associated with general disturbances and nervous symptoms. The local changes are dilatation of the stomach, congestion of the liver, and, in women, prolapse of the right kidney. The general symptoms include general chilliness, especially marked in the extremities. The nervous changes show themselves as neuralgic pains and mental depression. Dujardin-Beaumetz considers the explanation of the cause of the above condition given by Glénard and Bouchaud insufficient, and he accepts the suggestion of Bouverch, that a paresis of the muscular coat of the stomach, due to a morbid state of the nervous mechanism, is the primary lesion and the cause of the resulting nervous symptoms. Two classes of cases may be distinguished: one in which the nervous symptoms exist side by side with the stomach dilatation, the other in which the nervous symptoms follow the dilatation. In the first class, treatment of the dilatation of the stomach has no effect on the nervous symptoms; in the second, treatment of the dilatation removes the nervous symptoms. The treatment consists in the use of intestinal antiseptics and the removal of alimentary toxins by laxatives and a vegetarian diet. If diarrhoea exists, intestinal lavage must be carried out. Massage is useful.

#### **Tetany following dilatation of the stomach.**

Dr. W. Collier (*Lancet*, 1891, vol. i., p. 1251) gives the particulars of a case of dilatation of the stomach, in which severe muscular cramps—affecting the arms, legs, back, and abdomen—followed the washing-out of the stomach. He gives the details of five similar cases—one at Addenbrooke's Hospital, Cambridge, three reported by Kussmaul, and one by Dujardin-Beaumetz. Five of the six above-mentioned cases ended fatally. In three of the cases the attacks of muscular spasm followed the washing-out of the stomach; in the other three, the attacks followed severe vomiting.

Dr. Collier thinks that the muscular spasm is probably caused in a reflex manner, by irritation of the nerve-endings of the vagus in the stomach, the reflex result being increased owing to cerebral irritation, caused by the vomiting and malnutrition.

E. N. Nason (*Lancet*, 1891, vol. ii., p. 44) relates a case of dilatation of the stomach associated with general muscular rigidity. The contents of the stomach had "an extremely acrid odour" and an acid reaction. The first attack of muscular rigidity lasted about one hour, and was relieved by chloroform and rubbing. The stomach condition was treated by full doses of soda and bismuth; and although there were several attacks of muscular cramps during the following forty-eight hours, they gradually diminished in severity, and finally ceased.

Nason attributes the muscular spasm to the absorption of some poison from the stomach, helped possibly by reflex effects, starting from the irritated mucous membrane.

## XII.—HÆMATEMESIS.

Elvy (*Medical Chronicle*, May, 1891, vol. xiv., No. 2, p. 140; *Philadelphia Medical News*, p. 456, vol. lvii., No. 18, 1890) recommends the use of antipyrin in the treatment of hæmatemesis in the following form :—

Hydrochlorate of cocaine	...	...	...	...	gr. 1½
Antipyrin	...	...	...	...	gr. 45
Mix.					

Divide into five powders, and follow the administration of each by a tablespoonful of rum. Alcohol assists the action of antipyrin as a hæmostatic.

[The treatment is recorded, but by no means recommended. Except for the relief of urgent collapse, stimulants are harmful in hæmatemesis, while the use of such a depressant drug as antipyrin must by all means be avoided.—R. M.]

## XIII.—NAUSEA AND VOMITING.

*Journal of the American Medical Association*, March 7, 1891, No. 10, p. 352; *Therapeutic Gazette*. The following mixture is recommended for nausea and vomiting, viz., 1 part of menthol, 20 parts of alcohol, and 30 parts of simple syrup. A teaspoonful is to be given every hour. This mixture is said to be serviceable in the vomiting of pregnancy.

## XIV.—ANOREXIA.

### 1. Orexin.

Prof. Penzoldt (*Lancet*, 1890, vol. ii., p. 1048) thinks that the ill-success that has attended the use of this remedy in anorexia is due to the method of administration which he originally recommended. The gelatine covering of the pill appears to be affected by the orexin hydrochloride in such a manner that it becomes insoluble in the stomach. He now recommends that it be used in starch-paper wafers.

Drs. Glückziegel and Beckh have found that the drug yields satisfactory results.

Dr. E. T. Kothar (*Lancet*, 1891, vol. i., p. 211) studied the effects of hydrochlorate of orexin on the assimilation of nitrogen and fat,



and on nitrogenous metabolism both in healthy and diseased subjects. The conclusions arrived at show that orexin given in doses of from five to twelve grains daily, for four or five days, increases the assimilation of nitrogen both in healthy and diseased conditions. It increases the assimilation of fat in diseased conditions. The appetite is improved both in health and disease.

The pathological cases experimented on included three cases of chronic gastritis, and one of carcinoma of the stomach.

Dr. John Gordon (*Lancet*, 1891, vol. ii., p. 68) publishes the results of five cases of anorexia associated with tubercular disease in children, treated with hydrochlorate of orexin. The ages of the children varied from two to eleven years. The dose employed varied from  $\frac{1}{8}$  to  $\frac{1}{4}$  grain three times a day before food. In every case marked improvement of the appetite quickly followed the use of the drug. Dr. Gordon considers that the claims on behalf of this drug, brought forward by Prof. Penzoldt, are well founded; for in all the cases above quoted the appetite was increased, and the absorption of the products of digestion was stimulated.

A. Beckh (*Münchener Med. Wochenschr.*, 1890, No. 33; *Centralblatt für Medicinische Wissenschaft*, Dec., 1890, No. 50, p. 926) recommends the use of orexin as a stomachic in cases of anæmia, chlorosis, gastric catarrh, and nervous dyspepsia, as well as in simple anorexia.

Körnfeld (*Wiener Klin. Wochenschr.*, 1891, No. 314; *Centralblatt für Medicinische Wissenschaft*, May, 1891, No. 18, p. 328) advocates the use of orexin in chronic disease of the stomach, in incipient phthisis, in alcoholic catarrh of the stomach, in anæmia and atonic dyspepsia. He thinks it is contra-indicated in gastric ulcer and acute catarrh of the stomach.

Imrédy (*Pester Med. Chir. Presse*, April, 1890; *Centralblatt für Klinische Medizin*, Nov., 1890, No. 47, p. 864) thinks that the use of orexin as a stomachic cannot be recommended. He is not convinced that the appetite is improved by its use, and in many cases it causes nausea and vomiting.

G. Müller (*Therapeutische Monatshefte*, June, 1890; *Centralblatt für Medicinische Wissenschaft*, Feb., 1891, No. 7, p. 143) has had no success with orexin as a stomachic.

[The caution with which Professor Penzoldt's new drug was mentioned in the last issue of the "Year-Book" seems to have been warranted. In addition to the opinions quoted above many others adverse to the use of orexin have appeared. I have tried it myself, giving it in *cachets* and together with food. Not only did it fail to increase the appetite, but it produced, even in small doses, very disagreeable burning and irritation.—R. M.]

## 2. Guaiacum.

Dr. Murrel (*Medical Press and Circular*; *Bulletin Général de Thérapeutique*, March 15, 1891) advocates the use of guaiacum as a laxative or purgative. He prescribes it in the form of resin, 50 centigrammes, with 3 grammes of honey. He has found it reliable, and followed by no ill-effects, except an occasional eruption on the skin on the arms and legs.

## 3. Glycerine injections and suppositories.

Dr. Polubinski (*Med. Chron.*, April, 1891, vol. xiv., No. 1; *The Therapeutic Gaz.*, Aug. 15, 1890, p. 550; *Deutsche Medizinische Zeitung*, June 19, 1890), as the result of considerable experience, has come to the conclusion that the indications for the use of glycerine suppositories and enemata are as follows:—(1) When the rectum already contains faecal masses; (2) when faecal masses are present in the intestine immediately above the rectum; (3) when there is mechanical pressure on the rectum or sigmoid flexure; (4) when in children there is a scrofulous condition; (5) when the act of defecation, though occurring daily, is performed with difficulty, and accompanied by pain.

## 4. Boric acid.

Flatau (*Practitioner*, June, 1891, No. 276, p. 456; *Berlin. Klin. Wochenschr.*, No. 9, 1891) recommends the insufflation per rectum of boric acid, three-fourths of a teaspoonful at a time, in cases of chronic constipation. If the mucous membrane projects at the anal orifice, Flatau recommends that it should be washed with cold water and dried, and then sprinkled with powdered boric acid.

## 5. Action of aloin.

Professor Meyer (*Archiv. f. Expt. Path.*, xxviii., Heft 3 and 4, 1891; *Suppl. Brit. Med. Journal*, 1891, vol. i., p. 135) has examined aloin obtained from Barbadoes, Curaçoa, and Natal aloes. The aloins obtained from Barbadoes and Curaçoa aloes are identical in composition. The formula of this aloin is  $C_{16}H_{16}O_7$ . The aloin obtained from Natal aloes has the formula  $C_{24}H_{26}O_{10}$  and is very much less soluble than the aloin got from Barbadoes and Curaçoa aloes. The aloin obtained from Barbadoes and Curaçoa aloes acts as a purgative, whether given by the mouth or hypodermically. The dose in each case is about the same. No albuminuria follows its subcutaneous injection in man. Natal aloin was active after very large doses only. If an alkali were added to it, or if it were given with an exclusively meat diet, its action was much increased, probably because the aloin is decomposed into a more active substance under these conditions. All the experiments seemed to show that aloin is not an active



purgative, but that it becomes gradually decomposed in the intestine into a more active body, and hence the slowness of its action.

#### 6. Dangers of cascarn.

M. Combemall (Suppl. *Bulletin Général Thérapeutique*, July 23, 1891, p. 211) has produced in dogs, after small doses of cascarn, excessive purgation and vomiting. Cascarn acts as an intestinal irritant.

### XV.—DIARRHŒA.

#### 1. Arsenite of copper.

Bentley (*The Therapeutic Gazette*, Jan. 15, 1891, No. 1., p. 27) reports two cases of chronic diarrhœa successfully treated with arsenite of copper.

Dr. Hinz (*The Therapeutic Gazette*, Feb., 1891, No. 2, p. 97) also gives the details of two cases of lenteric diarrhœa treated successfully with arsenite of copper.

#### 2. Hystrionica baylehuén.

Dr. H. Gilbert (*The Therapeutic Gazette*, Jan., 1891, No. 1, p. 67) reports several cases of chronic diarrhœa treated successfully by a fluid extract of hystrionica baylehuén.

#### 3. Red rose.

A. I. Alexëvsky (Suppl. *Brit. Med. Journal*, 1890, vol. ii., p. 46; *Bolnitchnaia Gazeta Botkina*, Nos. 51 and 52, 1890, p. 1212) recommends an infusion of red rose petals in the treatment of chronic diarrhœa. He illustrates his recommendation by cases successfully treated in this way.

#### 4. Salol.

Moncorvo (Suppl. *Brit. Med. Journal*, 1890, vol. ii., p. 38; *Revue Mensuelle des Maladies de l'Enfance*, 1890, Oct.) recommends the use of salol in the malarial diarrhœa of children.

### XVI.—GASTRO-ENTERITIS.

#### Resorcin.

Menche (*Lancet*, 1891, vol. ii., p. 505) has found resorcin very useful in arresting fermentative processes in the gastro-intestinal contents. Dr. Menche considers that resorcin acts like calomel, without affecting the heart. He gives two teaspoonfuls of a solution of the strength of three to five parts in the thousand every two hours. He also recommends its use with opium, the absorption of fermentation products from the bowels being thus obviated. Dr. Menche has found resorcin useful in cholera nostras, in various forms of gastritis, and in dilatation and

carcinoma of the stomach. It is occasionally useful in sea-sickness. A large dose, 4 to 15 grains, acts as a hypnotic. Care must be taken that pure re-sublimed resorcin is used.

## XVII.—DYSENTERY.

**G. T. Poynder** (*Indian Medical Gazette*, July, 1891, No. 7, p. 195) discusses the treatment of dysentery. In strong subjects he recommends the use of 3j doses of sulphate of magnesia every hour until the stools become feculent. In weak patients he recommends the use of 20 to 30 grains of ipecacuanha, preceded by a dose of tincture of opium. This should be given twice a day, and no food for one hour before and after the dose. If this fails to check the diarrhœa, he uses an injection of  $1\frac{1}{2}$  pints of water (90° F.), followed by the slow injection of the following mixture:—Quin. disulph. grs. x., tinct. camph. co. 5 iv., decoct. amyli. ad. 3j. The water enema is usually retained five or ten minutes, when the compound solution, slightly warmed, is to be injected, and is generally retained. In sub-acute and chronic cases he speaks well of cannabis indica. Perchloride of mercury is occasionally useful.

### 1. Ipecacuanha.

**Geo. A. Harris** (*Lancet*, 1890, vol. ii., p. 468) advocates the use of full doses of ipecacuanha powder from which the greater portion of the emetine has been removed. He finds, as the result of a considerable trial, that a powder so prepared acts quite as efficaciously in dysentery as ipecacuanha powder given in the ordinary way, and that its administration is followed by little or no nausea or depression.

He suggests that a trial should be made with ipecacuanha powder from which the emetine has been entirely removed, with the object of ascertaining whether ipecacuanha powder without emetine is inert in the treatment of dysentery. If this is found to be the case, he thinks the addition of fractional quantities of emetine ( $\frac{1}{200}$  to  $\frac{1}{80}$  grain) would answer the purpose of his powder. He further suggests the use, in dysentery, of gallo-tannate of emetine, which, according to Watts's "Dictionary of Chemistry," vol. ii., p. 485, is neither emetic nor poisonous. The powder used by Mr. Harris is prepared by first removing the ipecacuanhic acid, which is subsequently mixed with the powder from which the emetine has been abstracted.

### 2. Antiseptic injections.

**Dr. P. S. Korytin** (Suppl. *Brit. Med. Journal*, 1891, vol. ii., p. 38; *Vratch*, No. 42, 1890, p. 951) gives details of the treatment of fifteen cases of dysentery by means of enemata of warm water



or carbolic acid solution. He had fourteen recoveries. It made apparently no difference to the result whether plain water or carbolic acid solution was used. The benefit derived seemed to be due to the washing-out of the bowel.

*Medical Chronicle*, July, 1891, vol. xiv., No. 4, p. 300; *Centralblatt f. Klinische Medicin*, No. 11, 1891. A solution of bichloride of mercury ( $\frac{1}{3000}$ ) was used as an enema in daily injections of about seven ounces. Excellent results were obtained, and in no case were there any symptoms suggesting mercurial poisoning.

### 3. Peritonitis following enemata in dysentery.

Dr. R. R. Ball (*Practitioner*, March, 1891, No. 273, p. 214; *New York Med. Journal*, Jan. 10, 1891) reports a case of dysentery in a girl aged seven, treated by enemata. After five days' treatment the patient developed symptoms of acute peritonitis, due, Dr. Ball thinks, to perforation of the bowels following an enema. Recovery took place.

### 4. Naphthalin.

M. Minerbi (*Supplément Bulletin Général de Thérapeutique, Bulletin Médical*, March 24, 1891, p. 88) has obtained satisfactory results in twenty-three cases of dysentery with suppositories of

Cacao butter	} àà 10 grammes.
Naphthalin	

Later, in the cases in which the ulcerations affected the bowel higher up, he used enemata of

Olive oil	...	...	20 grammes,
Naphthalin	...	...	5 grammes,

repeated three or four times in the twenty-four hours. All the cases were cured by this treatment in less than fourteen days.

### 5. Epsom salts.

A. W. D. Leahy (*Lancet*, 1890, vol. ii., p. 711) advocates the use of a saturated solution of Epsom salts in the treatment of acute dysentery. He publishes the results of ninety-five cases treated in this way, in which he had ninety-two recoveries and only three deaths; of the three who died, two were admitted in a moribund condition. Mr. Leahy adopts the following method of treatment:—A drachm of a saturated solution of magnesium sulphate, with ten drops of dilute sulphuric acid, is given every one or two hours, until the stools have become copious, feculent, and free from blood and mucus, the temperature has fallen, and the pain and tenesmus have ceased.

In the large majority of the published cases the administration

of the solution for from one to two days sufficed to satisfy the above conditions.

When the patient passes only two or three stools in the twenty-four hours, an ordinary astringent mixture is given. The advantages of the treatment described are that it is not depressant, it does not cause nausea and vomiting, it soothes the patient, and relieves the hyperæmia of the intestinal wall. Mr. Leahy is of the opinion that Epsom salts are of no value in the more chronic forms of dysentery.

#### **6. Sulphate of iron and salicylate of sodium.**

C. Daniels (*Practitioner*, Nov., 1890, No. 269) gives an account of an epidemic of dysentery in Fiji, in which ipecacuanha was of no service. The best results were obtained from frequent doses of ferrous sulphate and salicylate of sodium, the mortality being 17·5 per cent. in cases so treated.

#### **7. Creolin.**

Dr. E. W. Watson (*The Therapeutic Gazette*, Aug., 1891, No. 8, p. 533) has found enemata of creolin (one drachm to the pint) most serviceable in dysentery and diarrhoea. He thinks creolin, used in this way, is without equal in the treatment of dysentery.

#### **8. Dysentery following the intra-muscular injection of calomel.**

Cramer (*Deutsche Med. Wochenschrift*, 1890, No. 14, and *Centralblatt für Klinische Medizin*, Oct., 1890, No. 42, p. 764) reports a case in which, after six injections of calomel, a severe attack of dysentery supervened, lasting five days.

### **XVIII.—VERMIFUGES.**

#### **1. Male fern.**

MM. Prevost and Binet (*Lancet*, 1891, vol. ii, p. 136) have investigated the physiological properties of the ethereal extract of the male fern. They find that, owing to the slowness with which the drug is absorbed from the stomach, bad effects seldom follow the administration by the mouth. Given hypodermically, the drug kills, by paralysing the heart and respiration.

#### **2. Case of poisoning by filix mas.**

Lob (*Münchener Med. Wochenschrift*, 1890, No. 38, and *Centralblatt für Medicinischen Wissenschaften*, March, 1891, No. 10, p. 192) gives the details of a case in which filix mas produced the symptoms of acute gastro-intestinal catarrh.

#### **3. Naphthalin.**

M. Mirevitch (*Supplément Bulletin Général de Thérapeutique*, July 23, 1891, p. 219) recommends the use of naphthalin not only for ascarides, but also as an excellent ténifuge. Its ad-



vantages are its certainty of action, and the absence of toxic effects.

For adults the dose is 1 gramme, followed immediately by 30 grammes of castor-oil. A single dose gets rid of the whole worm.

### XIX.—INTESTINAL ANTISEPSIS IN CHRONIC AFFECTIONS OF THE LARGE INTESTINE.

Dujardin-Beaumetz (*Bull. de Thérap.*, p. 529, June 30, 1891, and *Thérap. Gaz.*, p. 587, Sept. 15, 1891) points out that even in incurable affections of the large intestine, such as carcinoma of the rectum, much good may be done, and the patient's life prolonged, by removing fecal obstructions and decomposing secretions. He recommends the administration of antiseptics, both locally and by the mouth. Locally, he employs a solution of naphthol, of the strength of 4 grains to the quart of water, and introduces, by means of a syphon arrangement, a quart to a quart and a half or even two quarts of the solution. By the mouth he would recommend salol as the best of intestinal antiseptics, and gives the following formula:—

R	Salol	} aa 150 grains.
	Salicylate of bismuth	
	Bicarbonate of sodium	

Mix.

Divide into thirty powders. One powder to be taken before breakfast and dinner. The quantity of salol may be increased. The bowels should be kept freely open by purgative mineral waters, or cascara sagrada. As a help to this treatment Dujardin-Beaumetz thinks that a largely vegetable diet should be prescribed, composed of milk, eggs, cereals, fresh vegetables, and fruits.

### XX—ACTION OF OPIUM AND MORPHINE ON THE BOWEL.

Spitzer (*Virchow Archiv.*, cxxii, Heft. 3, 1891; *Suppl. Brit. Med. Journal*, vol. i., p. 134, 1891) carried out a series of experiments on the action of opium and morphine on the bowel in frogs, rabbits, and men.

In men he found that opium, when given by the mouth, acts more powerfully on the bowel than when given hypodermically. The general effect is not so great as in the case of morphine, due, probably, to the slow abstraction of the latter from the opium when opium is given by the mouth. Opium, by the mouth,

exercises more control over diarrhœa than morphine by the mouth, or than opium or morphine subcutaneously. In slight intestinal pain opium is to be preferred, on account of its general effects being less easily produced. In very severe pain hypodermic injections of morphia are best.

The experiments on animals go to show that opium diminishes the sensibility of the bowel by acting on the local sensory ganglia, and that the sensory terminations in the bowel are unaffected. The diminution of peristalsis is probably due to paralysis of the local motor ganglia, but may be due to the stimulation of the inhibitory spinal centres. Large doses of opium increase peristalsis, probably as the result of spinal paralysis. Morphine in this respect has the same action as opium.

## XXI.—INTESTINAL PILLS.

Dr. W. H. Flint (*The Therapeutic Gazette*, No. 2, p. 94, Feb., 1891) has experimented on pills covered with an alcoholic solution of shellac, containing just sufficient balsam of Peru to give the final investment a suitable degree of elasticity. He finds that pills coated in this way pass through the stomach without being affected by the gastric juice. The coating is, however, easily dissolved by the alkaline juices of the small intestine. He points out the value of this process in the treatment of the intestinal contents locally, and in the administration of drugs which irritate the gastric mucous membrane.

## XXII.—GALL-STONES AND HEPATIC COLIC.

A discussion upon gall-stones took place at the Wiesbaden Congress in April, chiefly concerning the pathology of their formation, and in this respect was very important. The remarks upon treatment did not bring forth any new ideas, but show the state of German opinion on these subjects. A full account will be found in the *Therapeutische Monatshefte* for June and July.

Naunyn recommended especially the alkaline-saline waters, such as the hot Carlsbad wells. He was inclined to the view that they acted rather by stimulating the muscular coat of the gall-bladder than by their chemical action on the secretions. The injection of warm water into the rectum acted similarly. Operative treatment was most important.

Fürbringer would always treat the hepatic colic by narcotics in large doses, and recommended morphia, opium, chloral, and chloro-



form, in this order of merit. As treatment for the gall-stones the waters of Carlsbad and Vichy were excellent, but some credit must also be given to the regimen there enforced on the patients. Salicylate of soda and olive oil as internal remedies were often of very great value, acting as cholagogues. Attention to diet and general hygiene was all-important.

Prof. G. Sée (*Lancet*, vol. ii., p. 1280, 1890, and *La Médecine Moderne*) discusses the treatment of biliary colic. He urges that the removal of the gall-stone should be brought about by increasing the flow of bile. He points out that the hypodermic injection of morphia for the relief of pain in the acute stages of the disorder is not without its disadvantages. The injection of even minute quantities of morphia after a fit of vomiting produce in some patients a state of alarming collapse. He further mentions that morphia diminishes the secretion of bile. He is inclined to think that chloroform or chloral—the latter administered per rectum—might be of service, and he points out that these drugs relieve spasm, and do not hinder the secretion of bile. He considers antipyrin of no value. As cholagogues Prof. Sée strongly recommends the use of salicylate of soda, given with large quantities of fluid, or of olive oil, if it can be tolerated.

During an attack of biliary colic, Prof. Sée strongly opposes the giving of any drug which would, in any way, excite strong peristaltic action. Even after the attack purgatives should only be employed with the greatest caution, as renewed peristalsis may be excited in the biliary passages. All drugs should be avoided which interfere with the biliary secretion.

Dr. George Harley (*Bulletin Général de Thérapeutique*, Supplément, March 23rd, 1891, p. 83) recommends the use of tincture of belladonna in aiding the expulsion of small stones already in the biliary duct. During the crisis the patient should be placed in a warm bath, and made to inhale the A. C. E. mixture. An emetic or a purgative should be given, as the movements thereby excited favour the expulsion of the calculus. The contra-indication for the above treatment is found in cases suffering from great pain, in which injections of morphia should be given, and also the tincture of belladonna. Alkaline drinks should be administered, and a purgative consisting of calomel, rhubarb, and magnesia. Gentle massage of the abdominal wall assists the expulsion of the stone.

M. Willemin (*Supplément Bulletin Général de Thérapeutique*, July 8, 1891, p. 196) mentions nine cases in which olive oil arrested an attack of biliary colic. The attack was arrested a few minutes after the administration of the oil. This effect may be the

result of a reflex action, and is followed later by the cholagogue action of the oil.

M. Labbe states that castor oil is very useful in hepatic colic.

John W. Walker (*Lancet*, 1891, vol. i, p. 874) describes a case on which he operated for the removal of gall-stones, and in which at a subsequent date he brought about the solution of a gall-stone by the injection of glycerine and ether (equal parts) into the gall-bladder, through the fistulous opening left after the operation.

## XXIII.—ICTERUS.

### 1. Ozonised turpentine.

Carreau (*La Semaine Médicale*, March 11, 1891; *The Journal of the American Med. Assoc.*, April 4, 1891, No. 44, p. 483) recommends the use of large doses of ozonised turpentine in the treatment of cases of jaundice. It is given in the form of capsules, as many as sixty being taken in the first thirty-six hours. If these are vomited, the drug may be given hypodermically, in the form of the following solution:—Essence of ozonised turpentine, 10 grains; liquid vaseline, 50 grains.

### 2. Cold enemata.

M. Krull (Supplement to the *Bulletin Général de Thérapeutique*, March, 1891, p. 96) advocates the use of cold water enemata in catarrhal jaundice. One to two litres of water at a temperature of 12° R. are used on the first day; on the second and following days the temperature is raised to 18° R. The treatment was followed by a rapid amelioration of the symptoms.

### 3. Faradism.

Kraus (*Practitioner*, Nov., 1890, No. 269; *Archiv. f. Kinderkr.*; *Journal of Amer. Med. Assoc.*, vol. xv., p. 103, 1890) recommends Faradic electricity in the treatment of catarrhal jaundice; one electrode must be placed over the gall-bladder, the other over the vertebrae, in the same horizontal plane.

## XXIV.—OLIVE OIL AS A CHOLAGOGUE.

S. Rosenberg (*Centralblatt. für Klinische Medizin*, Sept. 6, 1890, No. 36; *Pflüger's Archiv.*, Bd. xlvi.), as the results of experiments on dogs with gall-bladder fistulae, states that olive oil in large doses is a powerful cholagogue. Sodium salicylate has the same property, but to a less degree. Water transiently increased the secretion of bile. Carlsbad water lessened the secretion of bile.



## XXV.—CALOMEL IN AFFECTIONS OF THE BILE-DUCTS.

Prof. Sacharjin (*Suppl. Brit. Med. Journal*, 1881, vol. ii, p. 14; *Berlin. Klin. Wochenschr.*, June 22, 1891) advocates the use of calomel in hypertrophic cirrhosis of the liver, in all cases of gall-stones, and in catarrhal jaundice. The indications for its use are the following:—(1) When the ordinary treatment by mineral waters, etc., has resulted in slight improvement only; (2) when the whole liver remains tender; (3) when fever persists.

## XXVI.—BOOKS PUBLISHED DURING THE YEAR.

"Digestion and Diet," by Sir William Roberts.—The author has compiled into a volume the numerous valuable papers he has published upon these subjects, which were hitherto scattered amongst the Journals and the Proceedings of the Royal Society. The articles have already received the attention of the medical public, and their re-issue in book form, after revision, will be warmly welcomed. The papers include not only Sir William's scientific researches upon the chemistry of digestion, but also the lectures in which he has pointed out the practical applications of his laboratory work.

"Food and Dietaries," by Dr. Burnet.—This will be found a most useful help to the practitioner in dieting his patients. The author does not burden the hurried reader with scientific discussions of the qualities of food-stuffs, but gives plain and specific directions as to the exact manner in which the food is to be given and the meals arranged; while under the headings of various diseases, the principles of the dietary required are shortly discussed. It is essentially a practical book.

To those who, in addition to practical hints, wish for scientific information on foods, "Food in Health and Disease," by Dr. Burney Yeo, may be recommended as a more complete treatise on these points. The constitution of foods is fully described, and the effects of modes of preparation on their composition. The principles upon which the dietaries of public institutions should be constructed are also discussed; while the second part of the book is devoted to "Food in Disease."

"Dyspepsie et Catarrh Gastrique," par le docteur C. L. Contaret.—This is a very large work, containing an account of all the most important researches on diseases of the stomach. The author's views are certainly original, but will scarcely be maintained by

张其成讲读

Prof. Sacharjin (Sappt. Ber. Berl. Klin. Wochenschr., June 22, 1907) has reported the following cases of the use of calomel in hypertrophic cirrhosis of the liver, gall-stones, and in catarrhal prostatic hypertrophy. The following:—(1) When the patient has been treated with waters, etc., has resulted in a great improvement, and the whole liver remains tender. (2) When the patient has been treated with waters, etc., has resulted in a great improvement, and the whole liver remains tender. (3) When the patient has been treated with waters, etc., has resulted in a great improvement, and the whole liver remains tender.

"Digestion and Diet," by the same author, has been compiled into a volume, and has been published upon these subjects, and amongst the Journals and the public, and their reception has been warmly welcomed. The scientific researches upon the subject of digestion, in which he has given his laboratory work.

"Food and the Metabolism of Carbohydrates" draws our attention to the most useful help that can be given to the physician in his view that the author does not discuss the question of glycolysis as due to the discussions of the glycolysis of carbohydrates and other directions as to the metabolism of carbohydrates and of transforming and the metabolism of carbohydrates and of transforming. In diabetes, diseases, the glycolysis of carbohydrates and of transforming. In diabetes, discussed. It is a very good book for the physician and for the glycolytic formation.

information (see *Journal*, vol. i., p. 219, 1891).  
Dr. Burns' patient had albuminuria of cyclical character  
on three occasions. On the first, slight systolic apex murmur, and  
the effect of digitalis was to increase it, whilst he had a mild attack of acute  
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on 29 occasions, and doubtfully on  
The largest amount was always  
to have no effect. Cold did not  
was kept recumbent, nor did  
movements, but walking about



others. He divides diseases of the stomach into dyspepsia and gastric catarrh; the former being produced by errors of diet, the latter by a rheumatoid diathesis, due to the prolonged action of moist cold.

"Du Chimisme Stomacal (Digestion Normale et Dyspepsie)," par G. Hayem et J. Winter.—This book contains many valuable researches upon important subjects. In the first portion, devoted to the normal chemistry of the stomach, after a criticism of the methods recommended by others, a new method is described for the estimation of free and combined hydrochloric acid in the stomach contents. This is very complicated, but said to be unusually accurate. The second part of the work is pathological. The authors admit three classes of dyspepsia:—Hyperpepsia, simple dyspepsia, hypopepsia, the first being due to irritation of the gastric glands, the last to insufficient secreting power of the same organs.

"Pathologie und Therapie der Krankheiten des Verdauungsapparates" (1891), by Rosenheim.—In this work the author discusses the subjects mentioned with special reference to dietetics. The present volume is the first part, and treats of Diseases of the Oesophagus and Stomach. The book is very practical. Diagnosis is discussed clearly and accurately. In the chapters on treatment, dietetics are dealt with very completely, and the work is well illustrated.

"Icterus" (1891), by Stadelmann.—The author publishes in complete form the results of his researches on the liver functions. He lays much greater stress upon the production of jaundice by re-absorption of bile than by changes in the blood. Many of the cases of so-called hæmatogenic icterus may be, he shows, connected with stagnation of bile in the bile passages and re-absorption therefrom. Urobilin-icterus is, he considers, also due to re-absorption of bile, complicated with urobilinuria. In the chapters on treatment there is nothing new, although the subject is fully discussed.

# DISEASES OF THE KIDNEY, DIABETES, ETC.

BY CHARLES HENRY RALFE, M.A., M.D. CANTAB., F.R.C.P. LONDON,

*Physician to the London Hospital, etc.*

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THE discussions which we noted in the "Year-Book" of 1890 with regard to those anomalous forms of albuminuria which are, apparently, independent of structural lesions of the kidney, and the contributions which occupied an important position in the "Year-Book" of 1891 respecting the treatment of chronic Bright's disease, this year scarcely present themselves for consideration. On the other hand, the question of the pathology of diabetes and its bearing on treatment almost entirely engage our attention. The points raised last year by Dr. R. Saundby in the Bradshaw lecture as to the pathology of the disease, especially as regards pancreatic diabetes, and the experimental observations of Minkowski, Mering, and Lépine, have diverted, for a time, our attention from the hepatic origin of the disease, towards a view that represents glycosuria—in many instances, at least—as due to the loss of a ferment in the blood, formed in the pancreas and other glandular organs, which normally has the power of transforming glucose, and preventing its appearance in the urine. In diabetes, according to the observations of Lépine and others, this *glycolytic* power is lost, and the glucose escapes transformation.

## **1. Cyclical albuminuria.**

Dr. W. P. Herringham (*Brit. Med. Journal*, vol. i., p. 219, 1891) describes the case of intermittent albuminuria of cyclical character in a boy aged 13, who had a slight systolic apex murmur, and who also, whilst under observation, had a mild attack of acute rheumatism. The urine passed whilst he was kept in bed was tested 34 times, and albumen found only three times. When up, albumen was found distinctly on 29 occasions, and doubtfully on three, out of 50 examinations. The largest amount was always in the morning, and diet seemed to have no effect. Cold did not cause albuminuria if the patient was kept recumbent, nor did sitting up in a chair or making movements, but walking about



did. There were never any casts, but leucocytes and oxalates. The albuminuria almost disappeared for a month without any obvious reason. Dr. Herringham is disposed to attribute the intermittent albuminuria in this case to pressure on the renal veins.

Dr. O. Heubner (*Henoch Festschrift*, p. 170, 1890) also gives an account of cases of cyclical albuminuria occurring in three children of the same family at about the age of puberty. In these cases the albuminuria was easily brought on by changing from the horizontal to the erect position, diminishing as the day went on. Violent exertion whilst in the horizontal position did not induce it. Heubner considers this form of albuminuria as an expression of general weakness, not associated with any renal structural change, but connected with a particular developmental period. He recommends treatment by iron, good nourishment, avoidance of bodily and mental fatigue, with short (one to two weeks) periods of rest in the horizontal position.

## **2. Albuminuria associated with diabetes.**

Dr. R. Schmitz (*Berlin. klin. Wochenschr.*, No. 15, 1891) states that out of 1,200 cases of diabetes in which the urine was examined for albumen, it was found in no less than 824 instances, in quantities varying from a trace to as much as 0.9 per cent. Of 206 patients suffering from diabetes of more than two years' duration, only four had albumen absent. Dr. Schmitz does not, however, regard the albuminuria as of importance as regards prognosis, unless there are signs of organic disease of the kidneys as well. He has known cases live for years in which diabetes and albuminuria co-existed—one patient for fourteen years. Dropsy was rarely present. Dr. Schmitz attributes the origin of albumen to the long-continued ingestion of large quantities of albumen; whilst added to this may be vesical catarrh, which sometimes results from the decomposition of saccharine urine.

[Dr. Schmitz's figures are much higher than those given by other authorities, no doubt because he has taken notice of the slight albuminuria which is present in most long-standing cases, and is caused by the irritation of the long-continued passage of dense urine, etc., whereas other writers have only taken notice of those cases in which the albumen is abundant and associated with the saccharine conditions of the urine from an early period. In order to arrive at the true explanation of the association of albuminuria with diabetes, it is necessary to differentiate between the two classes of cases, those in which the albuminuria is late and not abundant, and those in which it reaches a higher level, and either precedes or closely follows the appearance of sugar in the urine. Of this

latter class I have seen eight well-marked instances; all occurred in elderly persons over 50 years of age, the albumen amounting to quite 0·2 per cent. in most. All were gouty, three of them had actual gout, one a chronic eczema, another had heart-disease and dropsy, whilst a fourth had rigid arteries. Of these, two are dead, one from uræmia, the other from cerebral hæmorrhage. In these two there can be no doubt that the albuminuria was due to granular kidneys. In the others there was no other evidence of nephritis than the albuminuria, and the double condition existed apparently without exhausting the patient, for the disorder has made slow progress, one case having been under observation for some years. From this it is apparent that albuminuria, co-existing with diabetes, must not be considered as a peculiar type of that disorder, but that the albuminuria is accidental, and that many different conditions may lead to its appearance. It may, I have thought, in some few cases, when it cannot be otherwise accounted for, be due to increased hæmolysis in the liver, in addition to the disturbed glycogenic function; but at present there are no facts to establish such an hypothesis.]

### **3. Paroxysmal pulmonary œdema in Bright's disease.**

Prof. Bouvret, of Lyons (*Revue de Méd.*, pp. 241–251, 1890). Œdema of lungs is not an infrequent complication of chronic Bright's disease, but Prof. Bouvret, in this communication, draws attention to a paroxysmal form. The chief symptoms are paroxysmal dyspnoea, with an abundant albuminous expectoration, ending either in death or in speedy relief. Different views have been advanced to account for this condition, such as want of equilibrium between the right and left ventricles, the left ventricle failing under its constant pressure. Prof. Bouvret, however, suggests a vaso-motor paresis of the pulmonary arterioles. He advises alcohol in large doses, hydragogue purges, poulticing the thorax, dry-cupping, bleeding, and, in urgent cases, the subcutaneous injection of caffeine and ether.

### **4. Albuminuria in the latter months of pregnancy.**

Dr. W. Lauder (*Medical Chronicle*, June, 1891) brings forward a series of cases of albuminuria occurring during the latter months of pregnancy, with a view of eliciting an expression of opinion regarding the advisability of inducing premature labour in those cases in which suitable treatment has had no effect in reducing the amount of albumen, or otherwise ameliorating the condition of the patient. The cases are divided into two groups: (1) Of four cases in which premature labour and abortion were induced. In all a fair trial had been given to other treatment before



resorting to an operation, but with no beneficial result. In none did operative treatment produce a bad effect. It is true that two deaths occurred subsequent to the induction, but in neither case could the issue be attributed to the operation. (2) Of six cases in which the albuminuria was not discovered until the beginning of labour. Two of these made good and rapid recoveries; in two others death occurred as a result of convulsions. These facts emphasise the importance of examining the urine of every woman in the latter months of pregnancy.

[The question of operative interference in severe cases of albuminuria in the latter months of pregnancy takes a wider range than the immediate risk to the woman and the life of the child. If left alone, she may go her full time and recover from her confinement, but during the weeks she has yet to go the puerperal nephritis is still going on, and great and permanent damage done to the renal tissue, whereas if premature labour had been induced at once the renal mischief would have subsided.]

#### **5. Uramia in the apparently healthy.**

Dr. A. Westphal (*Berlin. klin. Wochenschr.*, No. 29, 1890) records the case of a young joiner, twenty-four years of age, who had been weak from childhood, but never seriously ill, who suddenly was seized with difficulty of breathing, left-sided-headache, and swelling of the feet and ankles. The urine was clear, acid, specific gravity 1·005, contained a trace of albumen and a few hyaline casts; there was some albuminuric retinitis, but nothing abnormal in the blood or internal organs. A day or so after admission the patient seemed quite well, and did not give the impression of being seriously ill. On the fifth day, however, a slight aphasic attack ushered in deep coma, accompanied by œdema of the lungs, from which he died, the urine measuring 28 oz., with a specific gravity of 1·002. Post-mortem examination presented the appearance of irregular patchy granular contraction. The right kidney was displaced downwards opposite the fourth and fifth lumbar vertebræ. It was very small, and appeared as a greyish-red mass of fibrous tissue. The condition was looked upon as congenital.

[A similar case occurred recently at the London Hospital. A young man, a clerk, was brought to the out-patient department with the history of previous good health till quite recently, when, after an attack of cold (?influenza), he had some fits. Urine was of low specific gravity, 1·005; on one occasion it contained a trace of albumen, on another none. He was admitted into the hospital in order to ascertain the character of the fits, and for a day or so there seemed to be little amiss, certainly nothing indicating serious renal mischief, as there was nothing in the past history

pointing in that direction, when suddenly the urine became scanty and contained a large quantity of albumen; he then had a severe uræmic convulsion, and shortly after died in a state of deep coma. The kidneys were small, but had not undergone any considerable granular change, and the capsule was fairly removable. The most striking appearance was the deep lobulation of each, like a foetal kidney. In both these cases, which are interesting from the fact that quite up to the time of the fatal seizure no serious illness was experienced, and the condition of the kidneys not suspected, the previous immunity was due to the fact that renal changes were congenital, and though the kidneys were undeveloped and had undergone in part atrophic changes, they were not grossly diseased, and were capable for the discharge of their functions so long as no extra strain was thrown on them; but with the onset of an acute illness such as catarrh with pyrexia, as in the case I have quoted, and probably, from the history, in that of Dr. Westphal's, from a similar cause, the insufficient renal condition was aggravated, and an acute uræmic attack was the consequence.]

#### 6. Treatment of uræmia.

Dr. Grainger Stewart (*British Med. Journal*, vol. ii., p. 391, 1890) believes that many cases of uræmia are due to alterations of the circulation, and of nutrition of the cortical substance of the brain. Where there are hæmorrhages and degenerative changes, treatment, he believes, is of little avail. But when dependent on changes of circulatory pressure, or by direct poisoning, then active treatment may be resorted to, with good results. First of all, act freely by the skin and bowels, giving a subcutaneous injection of pilocarpine ( $\frac{1}{6}$  grain), packing the patient with hot bottles, blankets, and eiderdown quilts, and administering draughts of hot water. The use of the hot-air baths and the occasional administrations of diaphoretic medicine will usually keep up the action of the skin. Diuretics must also be employed, such as digitalis and strophanthus. In some cases, especially those connected with pregnancy, venesection, cupping, or leeches, is to be strongly recommended. A hydragogue purgative is generally admissible, especially when the attack is associated with constipation, and perhaps due to re-absorption of materials from the intestinal tract.

[With patients who are able to swallow copious draughts of hot water or other diluents, such active diaphoresis, diuresis, and purgation, will do no harm; but we must not forget that the withdrawal of so much water from the body, unless the patient is able to ingest more, leads to a concentration of the blood and a consequent aggravation of the symptoms. Indeed, it not infrequently



happens that an over-active purge has induced an attack of uræmia, from this very cause. For an acute attack venesection has shown the best result in changing the percentage composition of the blood and for eliminating the retained poisons; whilst in chronic uræmia we may quiet the motor disturbances with chloral or chloroform, and endeavour to improve the general health and eliminative power by means of ferruginous preparations. (*Vide* articles on Uræmia, "Year-Books," 1885, p. 74; 1888, p. 84; 1889, p. 79.)]

### 7. The urine in epileptoid fits.

M. Charcot (*Progrès Méd.*, November 15, 1890) has drawn attention to the fact that in the urine of the normal state, the alkaline phosphates are about three times the amount of the earthy; but that if we examine the urine of the same person after an attack of epilepsy or hystero-epilepsy, this proportion is changed. If the attack be one of genuine epilepsy, the relative quantities will be little altered; but after an attack of hystero-epilepsy, the earthy phosphates become either equal in amount or exceed by two-thirds. The urine, besides, shows other changes. In true epilepsy the total amount of the secretion is increased, as also the urea, and both kinds of phosphates. After a hystero-epileptic attack, however, there is a decrease in the amount of urine, of urea, and of both phosphates, but the alkaline phosphates are decreased out of all proportion. This observation may prove of value for the purpose of diagnosis of cases which M. Charcot calls *épilepsie partielle*, of which one of the components may be a local lesion or tumour of the brain, or else an hysterical condition, or either associated with a habit of true epilepsy.

### 8. Action of salol on the kidneys.

Dr. Hesselbach, of the Halle Pathological Institute (*The Practitioner*, July and Aug., 1890), remarks that salol is a drug intended to take the place of quinine and salicylic acid, which at first was recommended as free from noxious principles. Its dangers and drawbacks remained to be discovered by clinical observation. It is the phenylic ether of salicylic acid, and its composition may be stated as containing 40 per cent. of phenol and 60 per cent. of salicylic acid. It is eliminated somewhat slowly from the body, since for days after its ingestion the dark green or even blackish tint characteristic of carboloria is observable. The result is that when salol is given continuously its components are apt to accumulate and give rise to medicinal and even toxic effects of an enduring kind. The maximum dose of phenol in Germany is  $1\frac{1}{2}$  grains at a time, or  $7\frac{1}{2}$  grains a day; in Austria it is given  $\frac{3}{4}$  grain at a time, or  $2\frac{1}{2}$  grains a day. If,

therefore, a patient receives, as recommended by **Sahli**, 123 grains of salol a day, some 50 grains of phenol are set free in the body, or six times the maximum dose given in Germany, and twenty times the dose administered in Austria. A difference of opinion exists with regard to its untoward effects—**Sahli**, **Georgi**, **Von Jaksch**, and **Von Nencki** stating that large doses can be given without unpleasant results; whilst **Herrlich**, **Josefowitsch**, and **Kobert**, on the other hand, speak of decided carbolic acid poisoning after its use in large doses. Dr. Hesselbach's researches were instituted with a view of determining this disputed point. Comparing first of all the renal changes produced by phenol, and those by salicylic acid respectively, he found the former caused anæmia of the kidneys and acute fatty degeneration of the convoluted epithelium of the renal tubes; whilst salicylic acid gave rise to hyperæmia of the kidneys and hæmorrhage into the interstitial tissues. Phenol acts primarily on the cortex, salicylic acid affects chiefly the medulla. He applied this experimental research to a case of salol poisoning which occurred in a young female aged 22, who on June 8 had taken 120 grains of salol within eight hours, and who just before she took the last dose became faint and gave confused answers, and shortly passed into deep coma, remaining practically in the same condition till she died early in the morning of June 12. The post-mortem showed the kidneys anæmic, finely regularly granular, cortex pale yellow, much thinned, glomeruli inconspicuous and scanty. The cortex was traversed in the direction of the medulla by yellowish opaque streaks of various lengths of fatty degeneration—in short, the appearances that, in the experimental observations, Dr. Hesselbach had found due to poisoning by phenol, making it clear that the renal changes in salol poisoning are chiefly due to the phenol it contains. The question next arises, Why had salol this lethal action? As Dr. Hesselbach observes, phenol poisoning occurs more readily if the renal epithelium is diseased than when the kidneys are sound. In the case under observation, the contraction of the kidney, and the morbid changes in the secretory mechanism of the kidney, doubtless account for the fatal effect of the 47 grains of phenol contained in the salol ingested. Besides this, as **Küster** has observed, phenol, and therefore salol, is especially toxic to anæmic or febrile patients of the female sex. Moreover, there may have been, besides, some difficulty in the elimination of the salol compounds—leading to an excessive accumulation of phenol in the system, or deficient transformation of phenol into innocuous phenyl-ether sulphuric acid. However that may be, Dr. Hesselbach thinks he has shown reason for formulating the



opinion that: (1) The large proportion of phenol contained in salol renders it so toxic a substance that its unrestricted therapeutic use is fraught with danger. (2) That in renal disease salol is contra-indicated.

The *Lancet*, May 23, 1891, also records a fatal issue from the use of salol, taken from a Bohemian journal. Dr. Chlapowski had ordered a patient suffering from severe gastric symptoms a 15-grain dose, after taking which the patient became restless and unconscious, the pupils dilated, and the pulse irregular, the urine becoming dark and containing salicylic acid. Death occurred twelve days later. No doubt was entertained that the salol caused the symptoms of poisoning.

#### **9. Effect of chlorate of potassium on the kidney.**

Dr. Wohlgemuth (*Therap. Monatshefte*, No. 11, 1890) gives a note of warning as to the dangers resulting from the administration of even small doses of chlorate of potassium when the patient is fasting or exhausted. He was called to see a patient who had been ill eight days with sore throat and swelling of the left side of the face. He was suffering from difficulty of swallowing, and had taken little from the commencement of his illness. On the fourth day he had begun taking chlorate of potassium, and by the time Dr. Wohlgemuth saw him he had taken two bottles of mixture, each containing 75 grains of the salt. The patient said that on the second day after commencing the medicine his urine became very dark, but this had passed off. On examination the urine was found to contain albumen and hyaline casts, but was of natural colour. After the medicine was discontinued the symptoms gradually subsided, though a purpuric eruption appeared on the legs, and there was a slight œdema of the feet. By the end of the week, however, the urine became normal.

#### **10. Etiology and treatment of diabetes.**

Dr. Schmitz (*Berlin. klin. Wochenschr.*, July 6, 1891) discusses the causes that lead to diabetes, basing his opinions on 2,500 cases of diabetes he has seen, and of 2,115 cases of idiopathic diabetes he has studied. In diabetes, as in tubercle, he believes a disposition must pre-exist; and, like phthisis, he holds this to be infectious, and possibly due to a germ. [Dr. Schmitz has in a previous communication (*vide* "Year-Book" for 1891, § 23) maintained that diabetes is transmissible from husband to wife, and *vice versa*.] The disposition is inherited. In almost one-half his cases there had been diabetes among relations, sometimes as many as ten diabetics in one family. Age is an important factor, and there is a steady rise from 20 to 60 years for each decennium, after which a marked decline—the rise from 30 to 40 till 50 to 60 being rather more than

double. Diabetes, too, is more prevalent in some districts than in others. It is frequent among Jews, wherever they reside. In Neuenahr it is rare, whilst in Malta it is more fatal than tubercle in Germany. Dr. Schmitz does not believe that care, sorrow, and mental emotions have any influence in producing the disorder. A congenital diabetic predisposition may exist without any hereditary case, though madness, morphia habit, drunkenness, and masturbation may be found among the relations of diabetics. He also found diabetes was prevalent among gouty and tubercular families.

Professors Renzi and Reale (*Wiener med. Wochenschr*, Aug. 15, 1891), after a consideration of certain experimental observations on animals, thus sum up: That diabetes was produced by extirpation of the pancreas, duodenum, and salivary glands, though glycosuria did not follow in every case of pancreas extirpation, but only in 75 per cent. They found in dogs, when glycosuria was artificially induced, that the amount of sugar diminished on feeding them on meat, peptone, and calf's pancreas, and disappeared completely (in two dogs) when fed on green vegetables or inulin. With regard to the use of drugs, such as sulphonal, antipyrin, salol, phenacetin, they found, except in poisonous doses, these were ineffectual. In Professor Renzi's experience with regard to diabetic patients, he found that a mixed diet of fresh green vegetables, meat, eggs, fish, and cheese is the best. In one case where the excretion was 351 grms. on an ordinary diet, and 14.25 grms. on a meat diet, it was only 4 grms. on the above diet. The authors give adherence to the view that a ferment (glycolytic) exists in the body which destroys sugar, and which is formed in different organs.

### 11. Diet in diabetes.

Dr. A. E. Wright (*Brit. Med. Journal*, vol. i., p. 787), in a lecture delivered in the theatre of the London University on behalf of the Grocers' Research Scholarship, on some points connected with the pathology and treatment of diabetes, speaking of the diet, maintains that the patient should be fed on proteids, fats, and lævo-rotatory carbohydrates. Inulin is contained in Jerusalem artichokes, and is also found in dahlia tubers, in dandelion, chicory, and other roots, and can be baked into good bread. As cane-sugar and grape-sugar contain less unassimilable sugar than an equal weight of starch, fruits are more permissible to a diabetic than an equal weight of bread. Milk-sugar contains galactose, which has not yet been ascertained to be an assimilable sugar. To render milk free from milk-sugar, he advises the fat and casein to be precipitated by adding 1 to 2 drops of acetic acid per 1,000. The resulting



coagulum is to be strained off and re-dissolved in a 1 per cent. solution of a mixture of potassium, sodium, magnesium, and calcium salts, chiefly phosphates, citrates, chlorides, and carbonates. To this milk a trace of saccharin should be added, to supply the sweetness which the removal of the original sugar had taken from it. Dr. Wright also points out the close resemblances between phloretin diabetes and human diabetes. For instance, the increase of sugar excretion in the diabetic patient of the severe form, when he is given more proteid food, is exactly paralleled by what occurs in phloretin diabetes. In one experiment on a cat Dr. Wright found the sugar excretion was, with the same dose of phloridzin, when no food was given, 2.2 grs. per kilo.; when proteid food was given, 6.34 grs. per kilo. Another point which constitutes a link between phloretin diabetes and human diabetes is the appearance in the urine, in the phloretin diabetes induced during inanition, of the same morbid products of proteid metabolism as are found in human diabetes. Von Mering has seen oxybutyric acid and acetone produced under these circumstances, though Dr. Wright has not, but has met with two cases in which the red-brown coloration in the urine was obtained with ferric chloride, denoting the presence of aceto-acetic acid.

[Phloretin diabetes, we may remind our readers, was first investigated by Professor von Mering, of Strassbourg, who discovered, in the course of his inquiry into the effects of certain glucosides on the storage of glycogen in the liver, that phloridzin, which is obtained from the bark of many fruit-trees, produced glycosuria in animals.]

In conclusion, Dr. Wright touches upon the influence an increased or diminished degree of venosity of the portal blood has on the glycogenic function of the liver. That the degree of venosity of the portal blood should have great influence on the hepatic functions is *à priori* probable, and is borne out by experiments, which show that the post-mortem conversion of glycogen into sugar was much retarded in an atmosphere of carbonic acid, and Dr. Wright promises a method by which this question can be studied by means of the late Dr. Wooldridge's method of coagulating the blood within the living body.

## 12. Saccharine diet in diabetes.

*Archiv. f. exper. Path. u. Pharm.*, Bd. 26, 1890, gives the results of an investigation carried on in Prof. Naumyn's wards, to inquire what would be the effect of a diet containing a successively increased amount of sugar upon the sugar excretion of the urine in diabetes—the point to be ascertained being whether an increase of sugar in the food would be followed by an excretion

of sugar beyond that amount. The strictest precautions were taken, both as regards diet and also for preventing the patients obtaining food from outside sources. The results showed in all four cases that the assimilative processes in diabetes are lowered by a persistent supply of saccharine diet, but not to the extent that has been stated. Indeed, this lowering is not incompatible with an improvement of the bodily conditions.

### 13. Salicylate of sodium in diabetes.

Dr. Mansell Sympton (*The Practitioner*, vol. ii., p. 91, 1891), in a thoughtful article on the use of salicylate of sodium in diabetes, puts on record its action in a bad case of glycosuria. The patient was on mixed diet at the beginning of the treatment, when the administration of sodium salicylate made a difference of nearly two pints in the quantity of urine passed. Again, when on strict diet, the temporary cessation of the medicine on two occasions caused him to pass on each twice as much water as he did before. The urine became absolutely free from sugar in about 17 days from the commencement of the treatment with salicylate, and in 10 after the patient was placed on strict diet. Dr. Sympton believes it was greatly due to the salicylate that the urine became free from sugar and kept so; but, as the effect of strict diet is so marvellous in some cases, he does not insist on that. The patient had no bad effects from the drug; his appetite was excellent, and his digestion also. The case is not reported as cured, as that cannot be affirmed till he has been on mixed diet, and without the salicylate for some considerable time, with no return of the glycosuria.

[Such reports are useful, as tending to show in what forms of saccharine diabetes sodium salicylate can be administered with the best results. Considerable differences of opinion apparently exist among writers on the subject as to the class of case the drug most benefits, as also to its mode of action. There can be no doubt, however, that, combined with a strict diet, it has proved useful in cases of glycosuria of gouty rheumatic and malarial origin. In persistent diabetes I have found it serviceable in the *alimentary* and *constitutional* form, and less so in the *neurogenic*. In one case at the London Hospital it reduced the quantity of sugar quite one-third, after the patient had been on strict diet some weeks and the sugar had been slowly increasing. As to its mode of action, it is difficult to decide whether, as Dr. Sympton thinks, the salicylate of sodium causes a greater excretion of uric acid, and so, by relieving the blood of an excess of this body, arrests the abnormal irritation of the vascular system of the liver, thus putting a stop to the abnormal transformation of glycogen into



glucose, as he believes was the explanation of the good work effected by the salicylate in his case; or whether, as I think more probable, it simply checks the too rapid conversion of starch into dextrose in the alimentary canal, and thus prevents this converted sugar passing too suddenly into the circulation.]

#### **14. Sulphonal in diabetes.**

Dr. V. Casanelli (*International Journal of Medical Sciences*, March, 1891) finds that sulphonal diminishes the amount of sugar, the thirst, and diuresis in cases of diabetes. These good results are observed with moderate doses of from 1 to 2 grms. per diem, but are more pronounced with 3 grms. Two grms., however, is better borne for a longer time than 3 grms., as the latter produces dizziness and too heavy sleep. When given with a mixed diet, as with a restricted diet, the effects are quite as evident. With the latter, sugar appeared in great quantity after the sulphonal had been discontinued.

#### **15. Jambul in diabetes.**

Professor Lemaschen (*Berlin. klin. Wochenschr.*, No. 8, 1891) in Kasan has tried jambul in eight cases of saccharine diabetes, and has found the result satisfactory, so that he believes the contradictory statements made respecting it by other observers are due to its not having been administered in sufficient doses, or to its being of inferior quality. He states that after the administration of from 5 to 10 grammes of the powder in the 24 hours there was a decrease both of the amount as well as the quantity of sugar, and also an improvement of the other diabetic symptoms. An entire disappearance of the sugar, however, never took place, though it was considerably reduced. These large doses, Professor Lemaschen states, caused no disagreeable effects, whilst the patient often increased in strength. M. Égasse (*Bulletin Gén. de Thérap.*, p. 14, part ii., 1890) also bears evidence to the good effects of jambul given in doses of 1 to 2 or 3 to 6 grammes in the 24 hours. It is, he thinks, in cases of diabetes of less intensity that jambul gives the best results, when the proportion of sugar is not above 8 to 10 grammes a litre. Its action, he maintains, is in preventing the transformation of starch into sugar, though some authors attribute its efficacy to its action on the central vaso-motor system. M. Égasse also speaks favourably of its beneficial action in restoring the patient's strength and improving the appetite.

#### **16. Glycolytic power of blood in diabetes.**

Professor Lépine (Felix Alcan, Paris, 1891, and *Berlin. klin. Wochenschr.*, No. 19, 1891), in order to determine what he calls the glycolytic power of blood, has devised the following method:

100 c.c. of blood is run into a dish placed in cold water (15° C.); it is then defibrinated and filtered through sterilised cloth; 40 grammes are then weighed and dropped into a vessel containing an equal weight of sulphate of soda heated previously to 80° C., so that the temperature of the mixture stands at 54° C. The amount of sugar is then determined. Of the original portion of blood another 40 grammes are taken, and after standing one hour over a water-bath at the normal temperature of the blood, are then treated as the first portion, and the sugar determined. In normal conditions it is always found that the second portion contains less sugar than the first, and the difference between the two in the blood that has been exposed to the higher temperature is the expression of the *glycolytic power*. In diabetes Professor Lépine has, however, found this power much decreased. In normal blood he believes the source of this *glycolytic power* lies in the pancreas, and judging from previous experimental researches (*vide* "Year-Book" for 1891, § 18, p. 143), he thinks the power to be a soluble ferment conveyed chiefly in the white corpuscles. M. Butte (*Comptes rendus*, cxii., No. 6) states that extract of valerian added to blood delays the glycolytic action of the ferment.

### 17. Treatment of diabetic coma.

Dr. Schmitz (*Berlin. klin. Wochenschr.*, Aug. 25, 1890) recognises two causes as producing diabetic coma: (1) weakness of the heart's action, brought about by the action of sugar on the muscular fibre of the heart; (2) an acute self-poisoning which has been termed *acetonæmia*, though wrongly. In the first form it is shown by the cyanotic face, the dyspnoea and irregular pulse, slow and small, but quickening on the slightest exertion. The area of cardiac dulness is increased, the first sounds are not distinct, and the cardiac impulse faint and often irregular. Giddiness and noises in the ear, with great muscular weakness, are also present. The heart-muscle, as shown by post-mortems, will be found undergoing degeneration. If in such cases the heart becomes wearied from over-exertion, the above symptoms become aggravated, there is a tendency to vomit, the arteries become more empty and the veins more full, and carbonic acid accumulates, drowsiness is succeeded by coma, and the patient dies. Sometimes, instead of giving way gradually, the heart succumbs suddenly. The treatment to be adopted is to avoid exciting the heart's action by over-exertion, by stimulants, and drugs such as bromide of potassium, antipyrin, salicyl antipyrin, antifebrin, narcotics except when necessary, and only then sparingly. Nutritious but easily-digested food and invigorating air are the best remedies. In severe cases the patient should be



kept in a recumbent position, even avoiding the erect posture when micturating; and this position should be maintained till the first sound of the heart becomes clear. Stimulants should be given, the best being black coffee. With regard to the second condition that causes diabetic coma—acute self-poisoning—Dr. Schmitz is of opinion that the poison lies in the bowel, and is not due to acid intoxication (acetonæmia). The treatment simply consists of clearing the bowels, whether constipated or not, with castor-oil (ʒss.-ʒi). With the action of the oil, resulting in a profusion of black, foul stools, recovery takes place. Of eight cases, four, treated with castor-oil, recovered and four, who had no oil, died. Dr. Schmitz gives castor-oil even when there is diarrhœa, and the effect is equally good.

### 18. Cystitis in diabetes.

Dr. R. Schmitz (*Berlin. klin. Wochenschr.*, No. 23, 1890) gives an account of the cystitis which occasionally is a complication of diabetes. It occurs chiefly in a chronic form, and is rarely ever acute, though Dr. Schmitz relates the case of a previously healthy lady who suddenly experienced a rigor (104° F.) with symptoms of acute cystitis, partial retention, and the appearance of dark-coloured water. No cause could be assigned, but ten days after, when she was improving, 4 per cent. of sugar was found in the urine, together with mucus, pus, and phosphates. She recovered on a rigid diet and salicylate of sodium, and the sugar and cystitis disappeared together. The more common form—the chronic—Dr. Schmitz divides into three stages. The first, which is mild and unattended with subjective symptoms, in which the urine is faintly acid, somewhat turbid, with mucus corpuscles and a few pus cells. The second stage develops out of this; the urine contains many mucus and pus cells, bacteria, triple phosphates, and has an unpleasant odour; there is also increased frequency of micturition. The last and third is a more advanced stage than this. In addition to the before-named products, which are greatly increased, gas is formed in the bladder, and the subjective symptoms are more urgent. The prognosis in the two first stages is favourable; but if the disorder passes on to the third, it is not so hopeful. Much depends on reducing the glycosuria to a minimum. The treatment recommended is frequent washing out of the bladder by salicylate of sodium, with also its internal administration. Dr. Schmitz is of opinion that the cystitis takes its origin apparently from the decomposition of the saccharine urine within the bladder, but does not state how that decomposition at first originated.

[In a case at present under my observation a mild but very

obstinate cystitis commenced a short time after the patient came to me with eczema of the prepuce, caused by the saccharine urine, accompanied with great swelling of the glans penis and a urethritis, limited apparently to the lips of the urethra. This urethritis, I fancy, must have spread along the mucous surface till it reached the bladder, and caused the cystitis. In females, with their short urethra, such an origin is more likely to occur, and any external irritation of the mucous surface pass up the urethra to the bladder, where, if the urine is saccharine from any cause, fermentation with cystitis may be readily excited.]

### 19. Theobromine sodium salicylate.

Last year Dr. Gram, of Copenhagen (*Bulletin Gén. de Thérap.*, vol. cix., p. 112), gave the results of his clinical experience of the diuretic action of theobromine combined with sodium salicylate as a diuretic, which was reported in the "Year-Book" for 1891, § 27. Since then better acquaintance has been made with the properties of theobromine, and Mme. Kouindjy-Pomerantz has, under the direction and supervision of Dr. Dujardin-Beaumetz, carried out a series of observations on the nature of the diuretic action of theobromine sodium salicylate—or "diuretin," as it is now called. This substance is said to exercise a purely diuretic action, without any influence on the central nervous system. According to these observations, it was shown that "diuretin" in doses of 3 to 5 grammes, given in 1-gramme doses every two or three hours, is a powerful diuretic, though its action is not so strong as caffeine. It acts directly on the epithelium of the kidney, though it has no effect on the contractions of the heart. The diuresis provoked by it sets in rapidly, and continues twice or three times as long as that caused by caffeine. Its action is not lost by prolonged use, and it can be administered in milk or chocolate. It produces its best effects in cases of dropsy in which diuresis is still possible; but when the kidneys are disorganised, it has no action. Theobromine sodium salicylate, therefore, appears to be applicable to those cases where caffeine is not indicated, as the following comparison will show. In caffeine, the diuretic action is caused by increasing arterial tension, and is contra-indicated when that is increased; with "diuretin" no such action ensues, but it seems to exert its diuretic powers through the agency of the renal epithelium. Under the influence of caffeine the cardiac contractions become slower, whereas "diuretin" has no action on the heart at all. The diuresis of caffeine is not prolonged, whilst that of diuretin continues twice or thrice as long. Lastly, the patient becomes speedily habituated to the influence of caffeine, whilst that of diuretin does not soon lose its effect. Dr. Theodore Giessler (*Berlin*).



*klin. Wochenschr.*, Nos. 15 to 17, 1891) holds, however, a contrary opinion; and in opposition to Gram (*vide* "Year-Book" for 1891, § 27) and Mme. Kouindjy-Pomerantz, quoted above, holds that "diuretin" increases the blood-pressure, and is therefore to be considered not only a diuretic, but also as a cardiac remedy, useful in cases of cardiac incompetency. Its action as a diuretic is greater in acute nephritis than in the more chronic form. He also disputes Gram's statement that the diuretic action results from the theobromine, and not from the salicylate of sodium, as, he observes, there are a series of observations showing that salicylic acid and salicylate of sodium have a decided diuretic action.

Dr. A. Hoffman (*Archiv. f. exp. Path. u. Pharm.*, November 27, 1890) gives the following as his experience of the drug:—It is of special use in general dropsy, less so in accumulations of fluid in serous cavities due to inflammation. Its action depends upon the renal epithelium, but it also has an influence on the circulation. It is often of use when caffeine and digitalis have failed. In doses of 75 grains it has no unpleasant effects. Dr. Koritschoner (*Wiener klin. Wochenschr.*, No. 39, 1890) states that in twenty-three cases diuretin was better than other diuretics, and in eight it was extremely active. In ten it had a moderate action, and in four it was only slight. It was most useful in cardiac dropsy, next in dropsy dependent on obstruction to the portal circulation, and less so in renal dropsy. He could not discover any action of the drug on the heart.

#### 20. Asparagus—is it a diuretic?

Professor Nencki (*Archiv. f. exp. Path. u. Pharm.*, Bd. xxviii., Hft. 3 or 4) has attempted to isolate the body which gives the peculiar odour to the urine which follows after eating asparagus. Professor Nencki collected the urine of four individuals, who for their midday meal partook only of asparagus, up to 8 p.m. the same day. This was acidulated with oxalic acid, and distilled. The volatile products were treated with a solution of cyanide of mercury, and the precipitate, after being washed, was treated with a 5 per cent. solution of HCl. This mixture was heated, and its vapour gave the characteristic odour of methyl mercaptan, and when passed into a solution of lead acetate gave a yellow crystalline deposit. Methyl mercaptan is one of the products of fermentation of albumen and gelatine, and is one of the constituents of the gases formed in the large intestines from the putrefaction of albumen as well as indol and phenol. Dr. O. Loewe, of Munich, had previously shown that asparagus contained an organic sulphur compound, and Professor Nencki is of opinion that the methyl mercaptan is formed in the plant by the albuminous dis-

integration which takes place during germination. A correspondence, originated by Dr. S. Wilks, arose (*Lancet*, June 6—13, 1891), in which that gentleman asks whether the general experience was correct as to the character usually assigned to this article of food of being a diuretic, as he was acquainted with instances where the opposite effect was produced, the urine being diminished to half the usual quantity and micturition lessened in frequency. In reply, M.B. Cantab. stated that his experience was that asparagus caused an increased frequency of micturition, though the actual amount of excretion was diminished. On three occasions, after eating heartily of the vegetable, he was awake in the early hours of the morning with deep cutting pains in the perinæum and in the glans penis. It seemed as if the urine was highly concentrated, whilst the peculiar cutting pain suggested the passage of gravel, or some kind of crystals, which he thought might be either sparteic or succinic acid in a crystalline form. Dr. Tidy observes that the action of asparagus on the urine is not uniform, though in five cases out of six the amount of urine was diminished. F.R.C.S. says that for a long time he thought that asparagus acted as a diuretic. More careful observation, however, showed that after two good meals of this vegetable in the day the urine was reduced by at least one-third, the same quantity and kind of drink being taken as usual. The urine becomes high-coloured, and usually deposits urates; the watery element seems to be the constituent reduced. Dr. F. Vicars, referring to the quantities eaten in Russian Poland (the favourite kind being the "Hanover Colossal," or giant asparagus, only eaten when white and cut under ground, whilst the green is given to the pigs), states that the diuretic action is marked, but the quantity consumed considerably affects this.

[The contradictory statements with regard to the diuretic action of asparagus depends no doubt on the quality of the vegetable—whether the green part is in excess, or it is chiefly white. My own personal experience is that the characteristic odour is most marked with the white variety, which is usually accompanied by increased frequency of micturition, but no diuresis. I have often noticed the higher colour and the tendency to deposit urates. When the asparagus is green, I have noticed that the odour is not so strong, nor the micturition so frequent; and though I have personally experienced no increase in diuresis, I have known instances in which sugar appeared transiently in the urine after the ingestion of large quantities—chiefly after asparagus salad, for which the green variety is used. Perhaps a closer investigation may show that methyl mercaptan resides chiefly in the white



portion, and has an inhibiting action; whilst the green portion contains a glucoside, which, when taken in large quantities, causes diuresis by provoking a temporary diuresis.]

### **21. Cystinuria.**

Dr. W. G. Smith (*Lancet*, March 14, 1891), in a paper read at the Royal Academy of Medicine, Dec. 19th, 1891, describes a case of cystinuria, a condition so rare that scarcely seventy cases are on record. A boy aged eight years was reported by his mother to have passed urine of a fragrant orris-root odour, and depositing a greenish sediment. The boy's health was excellent in all respects, and there were no symptoms of urinary irritation. Out of six occasions upon which the child's urine was examined, once only was cystin found. The crystals were identified by their form, solubility in ammonia, and insolubility in acetic acid. Dr. Smith discussed in some detail our present knowledge of the physiology of cystin. He maintained that (1) cystin, or a cystin-like body, occurs in small amount in human urine as a normal product of proteid metabolism; (2) no relationship exists between uric acid and cystin; (3) associated with cystinuria, pathologically, is the occurrence in the urine and fæces of certain ptomaines belonging to the class of diamines; (4) normal urine and fæces never contain diamines, nor do they occur in cystin calculi; (5) the formation of diamines is due to the agency of specific bacteria in the intestine; (6) the exact nature of the correlation between cystinuria and diaminuria has not yet been determined; (7) cystinuria may persist for years without apparent injury to the health of the patient; (8) the therapeutical indication is to disinfect the contents of the bowels. Dr. Smith exhibited some microscopic slides showing the characteristic crystals of cystin.

### **22. Rupture of pelvis of kidney.**

Dr. Hewland (*Lancet*, July 18, p. 126, 1891), of St. Leonards, relates the interesting case of a boy, aged eleven, who, while riding a bicycle, was knocked down by a carriage. He could stand after the accident, but had bruises on the left side of the abdomen and chest, and a fractured clavicle. He vomited once. The urine passed was clear and free from blood, nor was there at any time any hæmaturia. Seven days after, a superficial swelling was noticed on the left side of the abdomen (diagnosed as a hæmatoma); eleven days after, left pleuritic effusion, which was tapped; eight days later, chest symptoms were again urgent, with displacement of heart. The abdominal swelling had also become more prominent and globular. Twenty-four ounces of serous fluid were removed from the chest. Thirty-two days after the accident, abdominal swelling was aspirated (under chloroform) in

the left loin, removing 45 ounces of pale yellow, non-odorous, faintly alkaline fluid—specific gravity 1010, with one-third albumen, one-fourth chloride of sodium, and a very small quantity of urea (less than 1 per cent.). Aspiration was twice repeated. The subsequent treatment consisted mainly in the restriction of the fluid taken by mouth to one pint daily. The tumour re-filled after the third tapping, but gradually disappeared, and was gone in ten weeks. The author discussed the diagnosis as between rupture of kidney substance, rupture of ureters, and rupture of kidney pelvis, and gave his reasons for choosing the last.

[Rupture of the pelvis of the kidney is so rare that few cases are on record. In the *Med. Chir. Soc. Trans.*, vol. ix., p. 247, a case is recorded by Mr. T. Holmes, in which a fluid very like that described by Dr. Hewland was discharged from a punctured wound in the loin. It was alkaline, and contained 9.85 parts of water to .15 solids. The solids consisted of an ordinary albumen coagulable by heat, and an albumen not so coagulable, but precipitated by acetic acid. There were traces of urea (0.07 in 100 parts) and the salts consisted chiefly of chloride of sodium and phosphates. It was suggested that the fluid might have proceeded from a punctured spina bifida, but there was no evidence that such previously existed, and it is difficult to imagine that so large a quantity of fluid could have escaped from the cerebro-spinal canal for such a continued period; besides, it was noticed that when the wound was partially closed the urine passed by the urethra increased in quantity.]

### 23. Paroxysmal hæmoglobinuria.

Dr. Copeman (*Practitioner*, September, 1890), as the result of an experimental research into the pathology of paroxysmal hæmoglobinuria, observes: "It appears indeed highly probable that paroxysmal hæmoglobinuria is only an exaggeration of a physiological phenomenon. The red corpuscles of the blood are constantly undergoing destruction, but the products of this destruction are used up in the system, and do not, in health, appear in the urine, either in the form of hæmoglobin or albumen. If, however, the destruction oversteps what may be regarded as the normal limit, the system may be unable to deal with the resulting products, and albumen appears in the urine; whilst if the destructive process be intense, even should it persist only a short time, then hæmoglobin will appear as well, or methæmoglobin, if the pigment be retained in the tubules of the kidney or in the bladder for any length of time. Dr. Ralfe, who wrote in the *Lancet* last year on paroxysmal albuminuria, showed that this affection is apt to occur in persons otherwise healthy, after exposure to cold,



fatigue, or mental worry, and, excepting that he rarely observed a rise of temperature, with symptoms practically identical with those of hæmoglobinuria, and considers that there is a definite relationship between the two diseases. It appears extremely probable then that paroxysmal albuminuria or globinuria—at any rate in those cases which are due to exposure to cold—merely represent an undeveloped form of paroxysmal hæmoglobinuria, being due, as in this latter disease, to an abnormal destruction of red corpuscles in the blood. It is obviously impossible that either of these affections are dependent on disease of the kidneys, which appear to act solely as organs for the elimination of the excess of effete products with which the blood is charged. It must be admitted that some peculiarities of the blood corpuscles themselves render them unduly sensitive to the influence of cold. According to Murri, the cause is to be sought in a diseased condition of the blood-forming organs, as is shown by the fact that even when there has been no paroxysm for a length of time, the corpuscles in the shed blood do not run together into rouleaux, whilst their consistence is obviously lessened, as the slightest pressure of the cover-glass is sufficient to make them assume all kinds of fantastic shapes. A cause for this chemically diseased condition of the blood-making organs, Dr. Copeman thinks, in conjunction with Murri, Barlow, and others, may be found in the effects of syphilis, since in all his cases he has found this factor present in one form or another.

#### **24. Hæmorrhagic pyelitis after the passage of renal calculus.**

Dr. Tilden (*New York Medical Journ.*, August 16, 1890) relates the case of a married woman, aged 26, who suffered from such severe and frequent hæmaturia that she became much blanched in consequence. As the evidence of renal calculus seemed very strong, Dr. McBurney removed the kidney. No stone was found, but examination of the kidney proved the existence of a chronic hæmorrhagic pyelitis, which it was considered might have originated with a calculus that had previously been passed.

[The case is an instructive one, as showing that pyelitis may persist even after the stone has passed from the kidney. A case similar to this has recently been under my observation. It occurred in a patient of Dr. Morton's, of Kilburn, a middle-aged man, who two years before I saw him had undergone lithotripsy. Although the operation was successfully performed, he continued to suffer from frequent micturition and the urine to contain blood and pus, as well as experiencing from time to time colicky pains in the right kidney—the kidney from which the stone that had been crushed

had originally descended. It was therefore feared that another stone was lodged there. As he was very unwilling to undergo an operation, an endeavour was made to secure its expulsion by means of alkaline waters and occasional doses of turpentine. For a time these measures gave him great relief, but suddenly, during the cold winter, the symptoms became worse, the blood and pus increased in the urine, and the pain more or less constant; whilst a tumour which rapidly increased in size, appeared in the right hypochondrium. At my request Mr. Beck explored the kidney, which was greatly disorganised, and contained a considerable quantity of pus, but no stone. It therefore seemed certain that the destructive pyelitis slowly developed after the passage of the calculus that was ultimately crushed in the bladder. These two cases are probably unique, for, as far as I can ascertain, there is no previous record of hæmaturia continuing after the passage of a renal calculus, no other being present.]

#### 25. Hæmaturia in East Central Africa.

R. F. Castle (*Lancet*, vol i, p. 931, 1891) states that hæmaturia is very common in and near Zanzibar among both Europeans and natives, and appears as (1) *parasitic*, due to the bilharzia hæmatobia attacking males, who are almost invariably under the age of thirty. Those who boil and filter their water do not suffer, whilst buchu and opium are useful for those who have contracted the disease. (2) *Non-parasitic*: the hæmaturia is ushered in with chills, and presents characters of hæmoglobinuria. However, as Dr. Parkes of the Emin Pasha Expedition states the urine contains numerous red corpuscles, it is probably a true hæmaturia.

#### 26. Hæmaturia after fresh rhubarb.

The *Lancet*, July 5, 1890, contains a correspondence relating to the irritation of the kidneys caused by eating garden rhubarb; following on a letter by "Medicus," which had been inserted the previous week. In each instance the irritation and occasional hæmaturia were referred to the presence of the oxalate lime crystals which the growing stems contain in abundance. One correspondent asserts, however, that it may be used with impunity, if used only early in the season, when it is quite young, as he supposes there are fewer oxalates in its early growth.

#### 27. Renal hæmophilia.

Professor Senator (*Berlin. klin. Wochenschr.*, No. 1, 1891) records a case of hæmaturia which, on cystoscopic examination, was proved to come from the right ureter. The patient, a young lady, came from a family of bleeders; as there was no reason to



suspect calculus or malignant disease, the case was judged to be one of hæmophilia. The hæmaturia was so persistent that the right kidney was ultimately removed, after which the bleeding ceased and has not recurred.

### **28. Hæmatoporphyrin in urine.**

Dr. Copeman (*Lancet*, January 24, 1891), at a meeting of the Pathological Society, London, showed specimens of urine containing hæmatoporphyrin from two cases under the care of Dr. Ranking, one of which died, while the other had recovered. Reference was also made to two other cases recently published, in which the symptoms were similar, and the pigment, although its true nature was not at the time determined, was apparently identical. All four patients were highly neurotic women of middle age, who had suffered from habitual constipation, sleeplessness, and abdominal pain, although no organic mischief could be detected. Great prostration,\* and sometimes apparent inability to move the limbs, was accompanied by the excretion of small quantities of urine only, which had a dark purple-red colour, but contained neither hæmoglobin, bile pigment, albumen, nor sugar. Finally, three of the four patients died, collapsed and comatose, within a week of the appearance of severe symptoms.

The absence of blood from the specimens of urine was determined by the spectroscope, which showed a four-banded spectrum, at first sight not unlike methæmoglobin, but which underwent no change on the addition of reducing agents, such as ammonium sulphide. All the specimens of urine had a peculiar smell resembling acetone, and did not undergo putrefactive change for months.

The suggestion was made that the disease from which the patients had suffered was allied to pernicious anæmia, in which also a considerable excess of pigment, apparently derived from abnormal hæmolysis, is present in the urine. The obstinate constipation which was a marked symptom in all the cases might have led to the absorption of poisonous products from the intestines, in which case the blood destruction would be likely to take place in the portal system—a theory supported by the absence of proteids in the urine such as are found together with the pigment after a paroxysm of hæmoglobinuria.

Dr. E. Salkowski (*Centralblatt f. d. med. Wissenschaften*, No. 8, 1891) examined the urine of three female patients, which had a dark red colour. Spectroscopic examination proved the existence of hæmatoporphyrin, which was isolated as hæmatoporphyrin calcium. Of the three cases one died. The probable cause was the use of sulphonal.

### 29. Urinary tests.

(a) **Trichloroacetic acid as a test for albumen.**—Dr. Nestor Tirard (*Lancet*, March 21, 1891), speaking of the great practical value of trichloroacetic acid as a test for albumen in the urine, remarks that any sources of error in its employment should be carefully noted. He draws attention to the point originally given by Boymond (*Répert. de Pharm.*) that when urine is saturated with urates the reaction may appear without any albumen being present, and the only way of avoiding this possible source of error is by free dilution of the urine before making the test. Trichloroacetic acid may be used either in the solid or liquid state, and it gives the most striking result when a good-sized crystal is dropped into a test-tube containing the urine. The crystal speedily liquefies, and if albumen is present produces a zone of turbidity in the urine just above it, otherwise a sharply defined line marks the junction of the white acid with the yellow urine. The zone of turbidity appears immediately when due to albumen, but when caused by urates it forms more slowly and is not so wide.

(b) **Test for glucose.**—Fitz Moritz (*Munchener med. Wochenschr.*, No. 1-2, 1891) has shown that the urine of quite healthy persons forms a combination of grape-sugar with phenylhydrazin—phenyl-glycosazone—which consequently settles the question of the existence of minute traces of glucose in normal urine, and thus constitutes an extremely delicate test for glucose. By means of this delicate test the effect of diet in causing a temporary alimentary glycosuria can be closely watched. According to Moritz this alimentary glycosuria is of a short duration, for after the consumption of 200 grammes of sugar it lasted only three hours in the case of grape-sugar, and little more than six after the use of grape.

(c) **Permanganate of potash as a urinary test.**—Mr. F. R. Humphreys (*Brit. Med. Journal*, vol. i., 1891) states that permanganate of potassium rapidly decolorises urine, no doubt from its action on a phenol which the writer thinks is formed in the intestine during the decomposition of albumen. This body varies as to its normal amount from 17 to 34 grains a day. The excretion is highest in the early morning urine, after a meal, and in warm weather. It is reduced by headache, and increased by pyrexia. Mr. Humphreys believes that the retention of this body gives rise to uræmia.

(d) **Salicyl-sulphonic acid as a test for albumen.**

Dr. J. A. Macwilliam (*Brit. Med. Journal*, vol. i., p. 837, 1891) suggests the use of saturated aqueous solution of salicyl-



sulphuric acid as a delicate test for albumen. A drop or two is added to 20 m. of urine in a test-tube, the mixture then shaken, when if albumen is present it will be precipitated, and not re-dissolved on heating; on the other hand, if albumose or peptones are precipitated they will re-dissolve on heating. It is sufficiently delicate to detect 1 part of albumen in 100,000 parts of urine. It gives no reaction with any other urinary constituent except albumen, albumose, and peptones, and these two latter, as above stated, can be distinguished from albumen by their precipitates being dissolved when heated, that of albumen not being re-dissolved.

(c) **Estimation of urea in urine.**

Mr. C. J. H. Warden (*Lancet*, vol. i., 1891) has devised a new apparatus for the more rapid estimation of urea by employing a larger tube, about three times the usual size, graduated on the principle of Russell and West's apparatus. As it consists only of a straight tube divided into two parts by a stop-cock, and fitted with a grooved stopper at one end, its mode of action is very simple. The solution of hypobromite is the same as in general use.

# GOUT, RHEUMATISM, AND RHEUMATOID ARTHRITIS.

BY ARCHIBALD E. GARROD, M.A., M.D. (OXON.), F.R.C.P.,

*Assistant Physician to the West London Hospital, and Assistant Medical Tutor  
at St. Bartholomew's Hospital.*

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## I. Gout.

The contributions to our knowledge of gout during the past year have come for the most part from certain German physicians, who have of recent years devoted much attention to the study of this disease.

## 2. Chemistry of gout.

Dr. Pfeiffer, of Wiesbaden (*Lancet*, January 3, 1891), reproduces the description of his test for "latent gout," which has been referred to in previous volumes of this "Year-Book." He replies to Sir William Roberts's criticisms upon the "uric acid filter" test, by claiming that its validity cannot be set aside by experiments made upon the urine of healthy individuals alone. With reference to Sir William Roberts's suggestion that it would be better to test the proneness of a given specimen of urine to deposit uric acid by keeping the total urine of the twenty-four hours in closed bottles, and noting the time at which crystals of uric acid begin to appear, Pfeiffer points out that experience shows that the interval which elapses before such deposition of crystals takes place depends chiefly upon the comparative richness of the specimens of urine in uric acid. Many observations would require to be made before this could be in any way regarded as a reliable test for the gouty state, and if the method were systematically carried out, it would entail such an amount of time and trouble as would deprive it of any practical value, especially as allowance would have to be made for the influence of temperature and of acidity upon the rapidity of deposition of crystals.

Pfeiffer also describes, in this paper, another test for latent gout, based upon the changes in the urine induced by the Kochbrunnen baths of Wiesbaden (of the effect of other baths he is



unable to speak). After about twenty baths, each of about half an hour's duration, in Kochbrunnen water at 92° F., the quantity of uric acid secreted is usually increased rather than diminished in non-gouty patients, but the "free" is increased at the expense of the "bound" uric acid. In gouty subjects, on the other hand, the excretion of uric acid is notably diminished, usually to about half the original amount, whilst the acid, which is at the commencement for the most part "free" becomes partly or completely "bound," i.e., is not separated by the uric acid filter. This difference between gouty patients and others in their behaviour under the Wiesbaden treatment Pfeiffer regards as of very great diagnostic importance, and he is prepared to decide from this alone whether or no a given case is of gouty or some other nature.

Carl Modhurst (*Verhandlungen des Congs. für Innere Med.*, 1891, p. 443) has examined Pfeiffer's statements that the urine of sufferers from the uric acid diathesis contains less uric acid than that of healthy persons, but that what uric acid there is is mostly in the free state. He studied the urine of seventy-two patients in all, forty-eight of whom were gouty, and fourteen rheumatic. His examination showed that in almost all cases of gout only a comparatively small quantity of "bound" uric acid is present in the urine, and he considers this part of Pfeiffer's statements to be established; but he also found that the total amount of uric acid excreted by gouty patients was, on the whole, greater than that excreted by rheumatic or healthy people of the same age. He found that the total uric acid excretion diminishes with advancing age, and he attributes Pfeiffer's results to his having overlooked this fact.

Modhurst also found that the relative quantity of "bound" uric acid increases, whereas that of "free" uric acid diminishes with advancing age. The specific gravity of the urine was higher in gouty than in rheumatic patients, and the mean acidity was also much greater in the gouty. The acidity diminished with age, and was greater in males than in females. The greater the acidity, the greater was the amount of free uric acid in the urine, whereas no free uric acid was found in neutral or alkaline urine. The total uric acid was always, and the free uric acid was usually, found to be diminished after about twenty baths in the water of the Kochbrunnen of Wiesbaden. He lays down the following rules for the treatment of gouty patients:—

People of gouty tendency should eat moderately, but should drink large quantities of indifferent fluids, preferably mineral waters. They should take plenty of exercise. The food should be easily digestible, and acid food and drinks should be avoided.

Alkalies should be taken, especially in the form of mineral water rich in sodium salts. Meat should be avoided as much as possible, because it tends to diminish the alkalinity of the blood and to increase the uric, phosphoric, and sulphuric acid formation, and also the hydrochloric acid of the gastric juice.

He strongly recommends waters containing sodium chloride, which encourage tissue changes and the formation of urine; and because this salt is naturally contained in blood and lymph, and has a preservative effect upon red corpuscles, epithelium, etc. On the other hand, large quantities of pure water have a detrimental effect upon the cell functions. He especially recommends the Wiesbaden "Gichtwasser," which is artificially prepared by the addition of sodium bicarbonate to the water of the Kochbrunnen.

W. Camerer (*Deutsche Med. Wochenschr.*, 1891, Nos. 10 and 11) reviews the progress of our knowledge of the physiology of uric acid, and all who are interested in this subject would do well to refer to this *resumé*. He sums up his experience of the treatment of gouty conditions, and recommends a course of treatment such as is, for the most part, adopted by the majority of physicians, advocating limitation of diet, and especially of animal food; avoidance of vinegar and other acid substances except in limited quantities, and a copious supply of fluids, especially alkaline mineral waters. He doubts the beneficial action of the chlorides and sulphates of the alkaline metals, greatly preferring the bicarbonate of sodium. He calls into question the superiority of lithium salts to those of other alkali metals. He recommends the regulation of alcoholic drinks, and, if possible, total abstinence, and lays stress upon the importance of exercising the affected joints after an attack of articular gout.

### 3. Surgical relations of gout.

Mr. Lawford Knaggs (*Brit. Med. Journal*, 1891, i., p. 1171) discusses gout in its surgical aspects, and records examples of various gouty conditions which have occurred in his practice. Among these he includes urethritis, of which he mentions a case in a man aged 40, in whom a purulent urethral discharge was associated with oxaluria. No other possible cause for the urethritis could be traced. Calculus, both renal and vesical, cystitis, epididymitis, cutaneous affections, ear diseases, and eye diseases, are also referred to. In most of the instances recorded the diagnosis of gout was based rather upon the hereditary antecedents than upon any frankly gouty manifestations in the patients themselves, but the author's object is to show how the gouty tendency shows itself in various forms in those who inherit the uric acid diathesis, which imprints its stamp upon their various ailments.



#### 4. Relation of Heberden's nodes to gout.

Dr. Emil Pfeiffer (*Lancet*, April 11, 1891) maintains that Heberden's nodes are essentially manifestations of the gouty diathesis. He admits that they are found in many persons who have never been subject to gouty attacks, but nevertheless maintains that when they are present there is a gouty tendency, inherited or acquired, and speaks of the nodes as being as typical signs of true gout as the affection of the great toe itself. He bases his opinion almost entirely upon the results of chemical examination of the urine, holding that in many cases urinary changes are the only signs of gout which can be detected. He judges of the gouty state of the patient from the behaviour of the urine when passed over the uric acid filter (for Sir William Roberts's criticism of this test see "Year-Book of Treatment," 1891, p. 154), and upon the diminution in the uric acid excretion during the Wiesbaden course. Pfeiffer quotes cases of Heberden's nodes in patients whose urine indicated a gouty condition to his test. He makes the somewhat startling statement that in cases of rheumatoid arthritis of the hands the third joints of the fingers always escape—a statement which is quite at variance with the experience of most observers of that disease.

He regards the changes in the terminal joints, when advanced, as beyond the reach of treatment; but in the early stages, when there is pain and stiffness of the joints, he advises repeated courses of baths, strict dieting, and the continued use of an alkaline mineral water, preferably that of Fachingen. Sometimes a single course of baths at Wiesbaden suffices to remove all pain.

#### 5. Melancholia and gout.

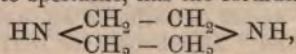
Dr. H. W. Gardner (*Lancet*, June 13, 1891, p. 1311) records the case of a man who, during his convalescence from a mild attack of gout in the left great toe, exhibited symptoms of acute melancholia of a religious type. There was evidence of serious obstruction to the peripheral circulation, whilst the left ventricle was apparently incapable of overcoming the resistance. The first sound of the heart was short and weak, whereas the aortic second sound was loud and ringing, the pulse was one of virtual tension, the radial artery being full between the beats, but rather easily compressible. A mercurial purge was given, a mustard plaster applied to the nape of the neck, and the feet were put in hot mustard and water. During the following night there was a slight return of gout in the foot, and the mental symptoms rapidly disappeared.

#### 6. Piperazine.

The treatment of gout has kept so closely to the same lines for

many years that much interest attaches to the introduction of a new drug which may possibly prove to be of service in combating that disease, although the data as to its action are as yet quite insufficient to allow of the formation of any definite opinion as to its value or uselessness.

Specimens of piperazine and its hydrochlorate were shown at the *Société de Thérapie* in the early part of the present year by **M. Bardet** (*Bull. Gén. de Thérap.*, March 8, 1891, p. 32), who pointed out that the urate of this base is remarkable for its free solubility, requiring only forty-seven times its own weight of water for its solution. The most soluble of the metallic urates, the urate of lithium, is comparatively difficult to dissolve, requiring 340 times its weight of water. Piperazine, which is supposed to be somewhat closely allied to spermine, has the formula—



and its chemical name is di-ethylene-diamine.

Bardet injected doses of as much as 40 centigrammes in the twenty-four hours without causing any unpleasant results. In a patient subject to gravel, the administration of 30 centigrammes daily was followed by a diminution or even suppression of the gravel, and an increase of the amount of soluble urate in the urine.

In the discussion which followed, **M. Vogt** stated that he also had made some trials of the drug, but with different results from those obtained by Bardet, the amount of soluble urates in the urine being diminished in his cases, whereas the urea was increased.

In the *Berliner Klinische Wochenschrift*, 1891, No. XIV., **Drs. Ebstein** and **Sprague** give an account of trials which they had made with this drug, and confirm the statements as to the solubility of its urate.

Piperazine was administered to a man, aged 30, who was suffering from villous tumour with hæmorrhage. There was no febrile disturbance. The drug was administered in water in doses of one, two, and three grammes in the twenty-four hours. During the period of administration the bladder trouble was practically in abeyance, and in no way interfered with the estimations. The uric acid was estimated by Oelker's method, as magnesium-silver urate, and the total nitrogenous excretion by Kjeldahl's method. Each estimation was performed in duplicate. The patient's diet remained unchanged throughout the period.

The drug was very well borne. **Ebstein** and **Sprague** publish a table embodying their results, which shows that the administration of piperazine had in this case no obvious influence upon the excretion either of uric acid or of urea.



### 7. Treatment of gout by douche-massage.

M. Forestier, of Aix-les-Bains (*Medical Press and Circular*, April 8, 1891, p. 346), discusses the action of the douche-massage treatment at Aix in cases of gout. His conclusions are based upon analyses of the urine of sufferers from gout, chronic rheumatism, rheumatoid arthritis, etc. He quotes the results arrived at in three cases of gout. In each of these the excretion of uric acid was increased, and also that of phosphates and urea. He found that a course of about twenty baths sufficed to restore the excretory functions to their natural condition, and to produce all the improvement which the treatment in question is capable of bringing about.

### 8. Pathology of rheumatism.

In the *Practitioner* (Feb., March, April, 1891) Dr. Haig expounds more fully his views on the causation of acute rheumatism by uric acid referred to in the "Year-Book" for 1891. In these papers he endeavours to explain a number of the phenomena of rheumatism as resulting from the presence of uric acid in the blood, including pericarditis and endocarditis. He holds that this disease originates under special and acute conditions when there is a large amount of uric acid in the circulation, some diminution of the alkalinity of the blood due to febrile disturbance of any kind driving the uric acid into the joints, and starting the attack. Since the young are more liable than the old to have from time great excess of uric acid in the blood, and are more liable to febrile disturbances from slight causes, rheumatism is chiefly met with in early life. Dr. Haig holds that in gout there is probably never anything like the absolute amount of uric acid in the blood which obtains in acute rheumatism, for metabolism is much slower in elderly people than in the young. One joint is usually affected at first as the result of some local condition which determines a loss of alkalinity in that joint, and into that joint all the uric acid in the blood is gradually precipitated.

In the treatment of acute rheumatism Dr. Haig believes in diet rather than in drugs. He thinks the salicylates the most useful drugs, but, since salicyluric acid is more soluble in slightly acid fluids than other compounds of uric acid, in order to obtain the maximum effect of the drug it should be given with acids or ammonia, and not with soda or potash salts. The salicylate must not be allowed to cause nausea, which implies diminished absorption of food and falling acidity which interferes with the action of a salicylate upon uric acid. The drug must be continued for some time to remove the stored up uric acid, in some cases for as long as six or eight weeks. Dr. Haig holds that the diet of patients

liable to rheumatism should be more or less vegetarian, and that such a diet might well be adopted as a preventive by members of markedly rheumatic families.

Bell (*Lancet*, 1890, ii., p. 16) maintains that rheumatism is comparatively little likely to attack persons whose bowels are in perfect order. He holds that the predisposing cause of the disease is in many instances a vitiated condition of the blood arising from fæcal absorption. Other causes, such as rupture of a tonsillar abscess, and the passage of pus into the stomach, may have a similar effect. He considers that the vitiated blood affords a favourable nidus for the development of the specific micro-organism of rheumatism, and points out that the disease tends to attack parts of which the vitality is low. He attributes the action of salicylates and their allies in cutting short rheumatic attacks to their antiseptic properties, and states that he has successfully treated the disease by the simple means of keeping the lower bowel empty with repeated enemata.

Waibel (*Münchener Med. Wochenschr.*, 1891, p. 83) gives statistics of the distribution of 121 cases of acute rheumatism throughout the years 1874–1889 inclusive. The greatest number of cases occurred in the months of January and March, the fewest in September. The disease was most prevalent in winter and spring and least common in summer. He is a firm adherent of the infective theory, and thinks that too much stress has been laid upon chill in the causation of rheumatism. He regards bodily exertion as an important predisposing cause, and states that seventy-four of the patients were engaged in mechanical work, whilst forty-seven were not so employed. He attributes the frequency with which morbid conditions of the digestive tract precede rheumatic attacks to the readiness with which the diseased mucous membrane takes up the poison.

#### 9. The fever of rheumatism.

In a very interesting paper in the *Zeitschrift für Klinische Medizin*, 1891, Bd. xix., p. 1, Kahler argues in favour of the primary nature of the fever in acute and chronic rheumatism (rheumatoid arthritis). He reminds his readers of the fact that in rheumatic fever the febrile disturbance may precede any obvious local manifestations of the disease, and mentions that he has known it precede the local signs by as much as a week. Such febrile disturbance is distinguished from that of enteric fever by the absence of the gradual rise of temperature from day to day, and the absence of rash, or of any considerable splenic enlargement. Since, in all such cases which he has observed, salicylates have only been given after the appearance of diagnostic symptoms, he is unable to speak



of their effect upon the initial fever. In none of his cases had there been any distinct evidence of endocarditis during the initial stage. In the second place, he lays stress upon those cases in which, during convalescence, a secondary febrile disturbance sets in which may last for weeks without any local signs. Of this also he gives an example, and refers to other recorded cases. Such cases are not common, if we exclude those in which there are signs of active endocardial trouble which may explain the fever. Nevertheless, Kahler considers that some cases cannot be thus explained. He also quotes certain cases of rheumatic myalgia and neuralgia attended with febrile disturbance.

Kahler holds that polyarticular rheumatoid arthritis owes its origin to the rheumatic process, whilst acknowledging that in some cases other morbid causes may be at work. He holds that the febrile disturbance, which is not infrequently observed in cases of rheumatoid arthritis, has a similar primary nature to that of acute rheumatism. He points out that the sufferers from rheumatoid arthritis are occasionally liable to recurrent febrile attacks which are not associated with any fresh increase of the disease in the joints. He states that in young patients he has occasionally observed the development of cardiac lesions in the course of typical rheumatoid arthritis. In such cases he has found the salicylates to have little effect upon the temperature.

#### **10. Rheumatic hyperpyrexia.**

In the *Practitioner* for May, 1891, p. 321, Dr. H. C. Male discusses the treatment of rheumatic hyperpyrexia by the cold bath and wet pack. He records a case which illustrates the efficacy of treatment by cold in keeping the temperature within bounds over a considerable period. In his case the treatment was commenced on November 2, and the temperature was carefully watched. Iced sheets, spinal ice bags, etc., were employed whenever 103° F. was approached, and the ice pack when 104° was approached. On November 5 the friends of the patient objected to a further continuance of the treatment, and on the following day the patient died, the thermometer rising to 112° or even higher before death.

Rosenthal (*Deutsche Med. Wochenschr.*, 1891, xvii., p. 395) records a case of rheumatic hyperpyrexia which was remarkable on account of the almost complete absence of cerebral symptoms, although the patient became unconscious shortly before his death. He was a man aged 31, whose temperature rose to 104° F. at the end of the first week of an attack of rheumatic fever. His breathing was embarrassed and there was profuse sweating, but no delirium and no convulsions. Five hours later the temperature was 105·8°, and there was great weakness, but no

loss of consciousness. An ice-bag to the head and a cold wet pack were applied. Two hours and a half later the patient lost consciousness, his face became cyanosed, and the breathing was rapid and stertorous. The axillary temperature was  $108.8^{\circ}$ , and rose before death to  $111.5^{\circ}$ .

### 11. Subcutaneous rheumatic nodules.

Dr. Wallace Anderson (*Glasgow Medical Journal*, March, 1891) describes a case of rheumatoid arthritis with nodules, but no cardiac lesion. The patient was a woman aged 50. (It should be noted that the nodules in this case were of no less than ten years' duration, and this suggests a doubt whether the lumps observed in this and some other recorded instances of adults in later life, although resembling the rheumatic nodules of early life, are absolutely identical in their nature. The present writer has seen rheumatic nodules of a transitory character in a man aged 39, who was suffering from an articular disease indistinguishable from rheumatoid arthritis, but there was some reason for thinking that it followed upon an acute attack of rheumatism. In this case the nodules, which were unusually tender, appeared in successive crops, and each crop lasted for a few weeks only.)

M. Nepveu, of Marseilles (*C. R. de la Soc. de Biologie*, 1890, ii., p. 328), describes the microscopic characters of a nodule removed from a young man with a recent endocardial murmur, and arrives at conclusions at variance with those of previous observers. He found in the centre of the nodule some necrotic masses of a finely granular structure surrounded by zones of leucocytes, which again were surrounded by connective tissue. He believes that an embolism is the primary lesion which starts the formation of a nodule, and that the embolus is probably derived from the cardiac valves.

### 12. Endocarditis in measles.

Mr. J. H. Hutchinson read a paper before the Royal Medical Chirurgical Society (1891), in which he recorded four cases in which endocardial murmurs were developed during measles. He suggests that a rheumatic taint may have been the predisposing cause of this unusual complication of the disease.

### 13. Rheumatic œdema.

The *Bull. et Mem. Soc. Med. des Hôpitaux*, 1891, viii., p. 65, contains a paper by Desnos upon a form of chronic œdema of rheumatic origin, to which attention was first called by Verneuil and Potain. The œdematous swelling may be supraclavicular where it resembles lipoma in appearance, but it is also met with on other portions of the trunk, over the occipital protuberances, and upon the limbs. It is sometimes seen upon the dorsal



surfaces of the hands. In the legs it rarely rises above the knees. The œdema is of a resistant type, rarely pitting on pressure. The colour of the skin over the œdematous parts is natural. The œdema may be long lasting or ephemeral, and it may precede, coincide with, or follow the articular manifestations. In some of the cases diagnosed as rheumatic œdema there was rheumatic heredity, but the nature of the œdema was only arrived at by the exclusion of other causes of this condition. Desnos relates two cases, one of which is a typical example of rheumatoid arthritis, with œdema of the feet; whilst the other is that of a girl who presented a rather hard œdema of the fore-arms and legs. The heart was healthy and the urine was not albuminous. Severe articular pains developed, and anti-rheumatic treatment was followed by the best results.

#### 14. Rheumatic tonsillitis.

Dr. W. H. Thayer (*New York Medical Record*, 1890, ii., p. 90) records some cases in which rheumatism was attended by tonsillitis, some of which afford excellent examples of the association of these conditions. In one case, however, the joint affection appears to have been of gonorrhœal origin.

#### 15. Flat-foot as a sequela of rheumatism.

Dr. F. B. Harrington (*Boston Med. and Surg. Journal*, 1891, cxxiv., p. 353) describes examples of the undoubted influence of rheumatism in the causation of flat-foot. He has found that great relief is afforded in such cases by supporting the arch of the foot by means of Whitman's plates. He attributes the production of this deformity to diminution of muscular power, coupled with softening of the tissues by inflammation, and the effort to use the feet with the least amount of discomfort, which tends to produce abduction. In some cases, although no obvious deformity remains after the attack, great relief is obtained from the use of foot-plates. Massage and appropriate medical treatment should also be employed.

#### 16. Treatment of rheumatism.

*Turkish Baths.*—C. H. Sheppard (*Journal of American Med. Assoc.*, 1890, xv., p. 424) advocates the treatment of rheumatism by Turkish baths, even when the disease is in so acute a stage that the sufferers are confined to bed.

*Tolerance of Salicylates.*—Katzenbach (*New York Med. Record*, 1891, xxxviii., p. 598) records the case of a woman, aged 20, suffering from rheumatic fever, who took unusually large quantities of salicylate without any ill effect. In the course of eleven days she took 1,710 grains (an average of 155.5 grains daily). Slight tinnitus and deafness were the only symptoms which could be

ascribed to the drug. Later, di-thio-salicylate of sodium was given in doses of three grains every three or four hours with good effect.

*Salipyrin* (*Annuaire de Therapie*, 1890, p. 318) is a combination of salicylic acid with antipyrin. It is prepared by adding gradually to a boiling aqueous solution of antipyrin an equivalent quantity of an aqueous solution of sodium salicylate. When the solution is diluted, crystals of salipyrin are formed. Formula  $C_{23}H_{12}N_2O_2 - C_{14}H_6O_6$ . This compound was first prepared by **Luttke**. It is a white crystalline powder, easily soluble in alcohol, sparingly soluble in water, and contains 57.7 per cent. antipyrin and 42.3 per cent. salicylic acid.

**Paul Guttman** (*Berl. Klin. Woch.*, 1890, p. 887) states that he found salipyrin exert a favourable action in cases of rheumatic fever, diminishing the pain and swelling of the joints. Its action resembled that of salicylic acid and antipyrin. It had no protective power against relapses. In most cases six grammes were given in the day, in doses of one gramme every two hours. It also acted well in cases of chronic rheumatism and rheumatic sciatica. Guttman saw no unpleasant after-effects from the drug; but in one case a rash, partly urticarious and partly papular, developed, which disappeared in three or four days. He regarded salipyrin as a useful drug, resembling its constituents in its action.

**Randozza** (*Gaz. degli Ospitali*, 1890, No. 59) gives an unfavourable opinion after an extensive trial of the drug. He found it apt to cause a burning sensation in the stomach and profuse diaphoresis. In acute rheumatism only a slight alleviation of the pains was obtained, and he considers salipyrin to be altogether inferior as a drug to either of its constituents.

*Phenocoll*.—Phenocoll is chemically described as amid-aceto-para-phenetidin, having the formula  $C_{10}H_{14}O_2N_2$ . It is related to phenacetin, and has the advantage over this drug that it is soluble owing to the introduction of an amido-group into the acetic radicle. The hydrochlorate is a white crystalline powder, soluble in 16 parts of water at 17° C. When injected it has no such effect upon the blood as most other antipyretics have, and it has been recommended as a valuable anti-rheumatic drug.

**Hertel** (*Deutsche Med. Wochenschr.*, 1891, No. 15) administered this substance in doses of half a gramme to a gramme in aqueous solution, and in cases of acute rheumatism five grammes were given in the day. In one case the pains yielded to this treatment after salicylate and antipyrin had failed, but it had no effect upon the temperature. In three other cases similar results were obtained. In a case of gonorrhœal arthritis the drug failed to do



any good. The administration of phenocoll had no disturbing influence upon the renal function, and it appeared to be very rapidly eliminated, since its reaction could not be obtained in the urine twelve hours after the administration of the last dose.

#### **17. Rheumatoid arthritis.**

Dr. Ralf Wichmann, of Brunswick, in a small book entitled, *Der Chronische Gelenk-Rheumatismus und seine Beziehung zum Nervensystem*, has recorded a number of interesting observations of nervous phenomena met with in connection with rheumatoid arthritis. He discusses the frequency with which different joints are affected and the order of their invasion, the symmetrical character of the disease, the attendant muscular atrophy, and the deformities. Moreover, although unacquainted with Dr. Spender's writings, he independently calls attention to the frequency of pigmentary disturbance in the skin of rheumatoid patients. Other symptoms of nervous origin are also discussed at length, such as trophic changes in the skin, increased reflexes, and various sensory disturbances. Space does not permit of such an analysis as would do justice to this interesting work, which tends to support many of the more recent observations in this country and abroad, which point to the nervous origin of rheumatoid arthritis. He speaks highly of the value of salicylates, antipyrin, and alkalies in the treatment of the disease, but is opposed to the use of vapour baths. He approves of skilled massage, and of electricity in suitable cases. In opposition to most recent writers he advises restriction of diet, and an almost vegetarian régime, but advises a tonic treatment with iron and cod-liver oil. He considers that all other considerations are unimportant in comparison with warmth and dryness of the patient's dwelling.

#### **18. Nosological position and relations of chronic rheumatic arthritis.**

Sir Dyce Duckworth (*Liverpool Med. Chir. Journal*, July, 1891, p. 245), in an address on the nosological position and relations of chronic rheumatic arthritis, after alluding to the various theories which have been propounded in explanation of its pathology, and after expressing his adhesion to some portions of Dr. M. Friedländer's views, sums up his own opinions. He expresses his belief that osteoarthritis is a manifestation of the rheumatic habit of body, or an arthritic cachexia. Acute rheumatism may precede its onset, sometimes by many years. He considers that true gout has comparatively little relationship to this disease, although the same diathetic basis underlies them both. He holds that habits of life have a large share in determining the manner in which the diathetic condition manifests itself.

Dr. Spender (*Brit. Med. Journal*, 1891, i., p. 1169) has called attention to certain points of affinity between rheumatoid arthritis, locomotor ataxy, and exophthalmic goitre. The pigmentation of the skin, which is a prominent feature in many cases of exophthalmic goitre, is compared with the pigmentary disturbance in rheumatoid arthritis, which he was the first to describe, and which has since been independently observed by Dr. Wichmann. Another point of resemblance is noted in the rapidity of the heart's action, which is a noticeable feature of both diseases. Dr. Spender describes cases of rheumatoid arthritis with tremor and muscular spasm, resembling that of paralysis agitans, and compares such tremors to those of Graves's disease. In some cases he has met with bulbar symptoms in rheumatoid arthritis, and these he regards as a connecting link with locomotor ataxy, with which disease other resemblances are observed in the characters of the pains, and the development to articular lesions closely resembling those of rheumatoid arthritis in cases of tabes. After mentioning briefly some other nervous symptoms, Dr. Spender concludes by pointing out the undoubted fact that many cases of rheumatoid arthritis date their origin from the recent influenza epidemic, and that many patients who were already sufferers have been left much worse after an attack of that disease.

M. Diamantberger has collected together in his *Thèse de Paris*, 1891, a number of recorded cases of rheumatoid arthritis in children, and has added several which have come under his own observation.

The observations of Kahler on the temperature chart of rheumatoid arthritis have been already referred to. The subject is one which has received but scanty attention, although the variations of temperature in this disease are often extremely interesting, especially in the more acute cases, a low morning temperature being often followed by a considerable evening rise, sometimes to  $102^{\circ}$  or  $103^{\circ}$ .

In a valuable contribution to the *St. Bartholomew's Hospital Reports*, 1890, p. 77, Mr. Bowlby has described the post-mortem appearance of the joints of patients who have suffered from hæmophilia complicated with arthritis. In such joints he found the cartilages worn and fibrillated over the seats of greatest pressure, and also outgrowths of new bone. The resemblance to the lesions of rheumatoid arthritis was very noticeable; but there is this remarkable difference, that in the arthritis of bleeders there is a great tendency to the formation of fibrous adhesions. Moreover, the liability to arthritis in hæmophilia decreases with the age of the patient. Mr. Bowlby considers that hæmorrhage into the



joints will not suffice to explain the phenomena, which differ considerably from those of traumatic hæmarthrosis.

Raymond (*Révue de Médecine*, 1890, p. 385) has made an experimental study of arthritic muscular atrophy in animals, which lend powerful support to Charcot's theory of the reflex origin of such atrophy.

He found that in the limb of an animal, in which a joint is injured, various symptoms are observed, such as functional impotence, increase of reflexes, idio-muscular contractions, increased Faradic excitability, sensory disturbances, and muscular atrophy chiefly affecting the interfibrillary substance. The atrophy is wanting when the posterior nerve-roots are divided or destroyed. Hemisection of the cord hastens the atrophy of the corresponding member, but does not affect that of the muscles of the opposite limb when the joints of both are injured. No anatomical lesion is present in the anterior cornua or peripheral nerves.

He concludes that the muscular atrophy following the articular lesion is of reflex origin, and due to purely dynamic alterations in the spinal cord.

Mr. Arbuthnot Lane (*Roy. Med. Chir. Soc.*, April 14, 1891) proposes to differentiate a variety of rheumatoid arthritis under the name of chronic traumatic arthritis. The cases are long in course and constantly progressive, and in them the causation of the disease is simple and solely mechanical.

### 19. Treatment of rheumatoid arthritis.

In the *Provincial Medical Journal*, April 1, 1891, p. 196, Dr. Spender contributes a paper which, although it advocates no new treatment, is certainly of much value, for in it he calls attention once more to the necessity of treating rheumatoid arthritis in an entirely different way from gout; and emphasises the harm which may be done by the free administration of alkalies and colchicum, and by cutting off of animal food and the more generous wines. He advocates a generous diet, the taking of cod-liver oil, of iron, arsenic, and quinine, and the avoidance of the iodides of potassium and sodium. He has found chloral useful in alleviating pain at night, and salicine has been of service during the febrile paroxysms. He condemns vapour baths, and advocates the douche massage carried out at Aix-les-Bains, Bath, and elsewhere. He advises rest during the active stage, and later, rhythmic exercises.

## INFECTIOUS FEVERS.

By SIDNEY PHILLIPS, M.D., F.R.C.P.,

Physician to the London Fever Hospital, and Physician to Out-Patients, St. Mary's Hospital.

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### 1. Treatment of typhoid fever by naphthol.

Teissier (*Assoc. Fr. Congrès de Limoges*, p. 651, 1890) treated fifteen cases with  $\alpha$  naphthol and salicylate of bismuth, the former in doses of 12 to 20 grains daily. As soon as antiseptics is obtained, which is shown by the green coloration of the urine on the third or fourth day, the fever falls and convalescence begins. This treatment he claims as superior to cold baths, as it is directed against the actual source of the infection, and the combination of the naphthol with the bismuth salicylate realises, as far as is possible, the rational indications for antiseptic treatment.

A. Marotte (*Lyon Médical*, 1890) agrees in recommending the  $\alpha$ -naphthol, which moistens the tongue and lessens diarrhoea. Also by disinfecting the intestine it lowers the temperature, and though the malady is not shortened, convalescence is rendered more rapid. Naphthol  $\alpha$  is less toxic and more antiseptic than naphthol  $\beta$ , and the dose he recommends is the same as that administered by Teissier.

### 2. Treatment of typhoid fever by naphthaline.

Dr. Wolff (*Medical News*, May 23, 1891) publishes the results obtained at the German Hospital of Philadelphia in 100 cases of typhoid treated by naphthaline. Every four hours  $4\frac{1}{2}$  grs. of powdered naphthaline are given by the mouth, and in the intervals between the doses a few drops of hydrochloric acid. At the beginning of the illness calomel in purgative doses is given. Ten of the hundred cases died, but of the ten fatal cases only two could be attributed directly to the typhoid fever. It is advised to continue the administration of the naphthaline after the fall of the fever, to prevent the internal temperature re-ascending. Sometimes the naphthaline leads to constipation.



### 3. Treatment of typhoid fever by lactic acid.

M. Hayem (*Annales de Méd. and Journal de Méd.*, 10th Oct., 1891) writes that lactic acid not only moderates the diarrhœa, but may even shorten the duration of the disease if commenced at its very onset. The lactic acid should be given in doses of  $3\frac{1}{2}$  drachms in a pint of lemonade, and no difficulty is usually met with in taking this dose, though it may produce constipation. Occasionally it is not well borne, especially when the patient has got into an adynamic state, and drinks only with difficulty. In such cases a little seltzer water should be added to the lemonade to lessen its acidity. In some cases the lactic acid is not tolerated, because there is dilatation of the stomach with prolonged stay of its contents within it; in such cases the stomach must be washed out once or twice and the intolerance ceases. The dose of the lactic acid may be gradually lessened when the pyrexia falls. Mr. Hayem also employs cold baths as well as the lactic acid in severe cases with a high temperature. In cases with profuse diarrhœa with much meteorism the dose has been increased up to 7 drachms a day; but in such cases it is better to add to the lactic acid lemonade half a drachm of hydrochloric acid, which augments its activity; and experiments by M. Lesage have shown that a mixture of the two acids has more potent influence on the typhoid bacillus than have the acids employed separately. The lactic acid has a favourable effect on digestion and on the general nutrition, and its good effects are due in part to its local action in the alimentary tract, and also to its passage into the blood.

### 4. Treatment of typhoid fever by thallin.

Schmidt (*Correspondenz-Blatt f. Schweizer Aerzte*, p. 829, 1890) gives the results of the administration of thallin to twenty-two typhoid patients. The mortality was less than the average treated in all other ways. No abbreviation of the malady was noticed, but there were no bad symptoms from the treatment, and thallin may be said on the whole to give as good results as the cold bath treatment, and in some cases is preferable to it. Rühmeyer, who in 1885 recommended thallin in typhoid fever, gives it in hourly doses during the daytime, with one dose during the night. He writes very favourably of the results, never having seen collapse result from it, and finding excellent sedative effects on the nervous system.

### 5. Salol in typhoid fever.

M. E. Egasse (*Bulletin Général de Thérapeutique*, Sept. 30, 1891), in an article on the medicinal uses of salol, quotes the results obtained by W. C. Cahall, of Philadelphia. He treated sixteen cases of typhoid by salol in doses of  $2\frac{1}{2}$  grains every two

hours, day and night, from the commencement of the disease to the period of fall in the temperature. He advises its administration in powder, which is more easily absorbed than pills. Tympanites is said to rapidly pass away, the stools improve, and the temperature begins to drop after twenty-four hours. There is little effect produced on the pulse. The administration of salol in no way interferes with digestion or with the nutrition of the patient. Being an antiseptic, the salol prevents the ulceration of Peyer's glands from infecting the system.

J. Barnfather, with doses of  $2\frac{1}{2}$  grains every three hours, obtained good results.

Dujardin-Beaumetz considers salol as the best and most innocuous intestinal antiseptic in typhoid fevers. He recommends that it should be given in doses of 15 to 60 grains, with an equal weight of salicylate of bismuth; the stools are rendered less offensive and diarrhoea controlled.

Some writers do not agree with the above reports of the efficacy of salol; thus Jacqoud asserts that salol increases delirium and sets up gastric trouble; Montange and Lesnik deny that the drug disinfects the stools, and according to Caldwell its advantages are counterbalanced in emaciated typhoid patients by its tendency to distinct digestive processes.

#### 6. Treatment of typhoid fever by chloroform.

Dr. Stepp, of Nuremberg (*Munich. Medicinische Wochenschrift; Lancet*, vol. i., 1891, p. 622), gives 6 drops of chloroform in 2 ounces of water thrice daily. The result of the treatment is that in a few days drowsiness and delirium disappear, the dry-coated tongue becomes moist, and the general state considerably improves. The temperature falls considerably in eight to ten days; the stage of remissions is cut short, and convalescence accelerated. Relapses are infrequent. On the average the fever lasted nineteen days in severe cases, and eight days in slight attacks. Dr. Stepp is inclined to believe that the chloroform passes through the system without decomposition, and so exercises an anti-bacterial effect. He never saw any ill-effects from its administration, and thinks it a useful stimulant. He thinks it impossible that the daily administration of 1 scruple of chloroform can have any deleterious effect on the blood by dissolving the corpuscles.

#### 7. Treatment of typhoid fever by resorcin and antifebrin.

E. Jordeus (*Journ. de Méd. de Bruxelles*, 1891, p. 325) reports seven cases of typhoid in children treated by the administration of resorcin and antifebrin combined in doses of  $4\frac{1}{2}$  grs. each every



three hours. The children thus treated had no severe symptoms and rapidly became convalescent.

#### **8. Treatment of scarlet fever.**

**M. Hutenei** (*Journ. de Med. et de Chir. Prat.*) has described the treatment adopted in the Hôpital des Enfants in Paris. Although he considers that it has not yet been established that the streptococcus of Klein is the specific cause of scarlatina, he believes it has been proved to be the active agent in producing complications; he believes the infecting micro-organism obtains entrance to the body through the tonsils and nasopharynx. Treatment is specially directed to the disinfection of this region by irrigation with solutions of naphthol or boracic acid, and the tonsils are brushed with absorbent cotton soaked in boracic acid. The children are kept in bed for four weeks, and on a diet of milk, which diet Jacquoud found prevented the occurrence of nephritis.

#### **9. Treatment of small-pox by ether and opium.**

**Mossé** (*L'Union Médic.*, Nov. 5, 1891) having tried this treatment—originally recommended by Castel—in the case of a young woman with small-pox, found it had a great effect upon the delirium and the nervous symptoms accompanying the onset of the disease, and has also a favourable influence upon the rash. The two drugs must be given together and pushed to full doses, and there are not produced any unfavourable symptoms.

#### **10. Treatment of diphtheria by peroxide of hydrogen.**

**W. A. Dickey** (*Ann. Gyn. and Pedr.*, 1890, v. 175) urges the removal of membrane as quickly and thoroughly as possible; but as the poison invades quickly any denuded surface, much care must be taken in choosing the remedy. Peroxide of hydrogen is a colourless, tasteless liquid, and dissolves the diphtheritic membrane quickly and thoroughly. It should be diluted 25 per cent., and applied with an atomiser. If applied to the interior of the nose, the nares should be first dried by blotting-paper or cotton wool. After the use of the peroxide, a solution of chloral hydrate, glycerine and water must be used as a gargle or with an atomiser. Dickey urges at the same time nutritious food for the patient and internal administration of bichloride of mercury or iron.

**Dr. W. Stephenson Richmond** (*Lancet*, vol. i., 1891, p. 179) writes that he has tested in two epidemics the use of peroxide of hydrogen in diphtheria; the spray should be used frequently, and will bring away the membrane in large quantities. Other remedies should be used at the same time, but half an hour should elapse after the use of the spray before painting the throat

with any other application, and the spray cannot be used too often.

### **11. Methyl blue in diphtheria.**

H. Beyer (*Philad. Med. News*, No. 58, p. 283) treated fifty cases successfully by the local application of a mixture of pure methyl blue and powdered sugar, 2 parts of the former to 98 of the latter; the methyl blue is tasteless. Beyer directs that the head be held in the horizontal position, the tongue depressed, and 5 to 10 grains of the powder be freely applied to the pharynx every two hours; no drink or food must be given for ten or fifteen minutes before and after the application. None of the fifty successful cases treated in this way were of laryngeal or retro-nasal diphtheria; and in such cases the results were not so good, though Beyer believes they were better than with any other remedy. Washing the retro-nasal and nasal space with boiled water, and applying the powder with the Devilbiss blower, gave most satisfaction.

### **12. Treatment of diphtheria by bichromate of potash.**

Dr. Guntz, of Dresden (*Lancet*, vol. i., 1891, p. 736), has had great success in the treatment of diphtheria with bichromate of potash in water containing carbonic acid. For an adult 600 grammes (about a pint) are ordered per diem, in which are dissolved 3 centigrammes (about half a grain) of potassium bichromate. The whole quantity is directed to be taken in about half a dozen doses, but it is important that they shall not be taken on an empty stomach, and a little milk or gruel should be swallowed before each dose. Children take smaller quantities according to age; the medicine can be given to them with some fruit syrup. At the commencement of the disease Dr. Guntz washes out the mouth with a 1 per cent. solution of permanganate of potash with 0.1 per cent. of thymol, or with a solution of corrosive sublimate (1 in 300), taking care in the latter case that none is swallowed. In the case of young children this solution must be brushed over the pharynx. Dr. Guntz remarks that potassium bichromate, though harmless in the way described, is by no means so in pills, powders, or in solution in non-carbonated water.

### **13. Treatment of diphtheria by boric acid.**

Mr. N. S. Manning (*Lancet*, vol. i., 1891, p. 932) uses a small indiarubber bag syringe 4 or 6 ounces, according to size of the patient, to irrigate the throat. The medicament used is boric acid dissolved in hot water at 103° F. The best solution to use is



made as follows :—Powdered boric acid four parts, glycerin (sp. gr. 1.260) three parts. The glycerin should be treated by steam, and the boric acid carefully powdered, stirred in till solution is perfect. Of this solution a large tablespoonful is dissolved in about a pint of hot water. The method of procedure is to sit the patient up, or if not possible, to place him on his side with his face over the edge of the pillow; apply a towel round the neck to keep the child dry; withdraw the nozzle from the syringe before filling it, and fill with the solution; replace the nozzle, and direct the patient to open his mouth, then put it into the mouth well over the back of the tongue, and forcibly empty the syringe; at the same time receive the water which rushes out of mouth and nose into the basin. In this way mouth, fauces, and nares are well irrigated every two, three, or four hours.

#### **14. Treatment of diphtheria by iodoform.**

Pulawski (*Berlin. Klin. Woch.*, May, 1891, p. 515) recommends the local application three or four times a day to the affected parts of iodoform, either by a probe with wadding, or by insufflation of the powder alone or mixed with calcined magnesia. The application is easy, does not produce any bleeding, and is not disliked by children. It can easily be carried out by a nurse. The iodoform acts as an antiseptic, and is absorbed into the blood as analysis of the urine shows. The author administers alcohol freely internally while using the iodoform locally.

#### **15. Treatment of diphtheria by inoculation of erysipelas.**

In the "Year-Book" for 1890, p. 181, the experience of Dr. Babtschinsky was given with regard to this treatment; he had found that as the erysipelatous processes developed the membrane disappeared, and the temperature fell. Triwausse, in the *Rev. Meus. des Mal. de l'Enfance* (Nov., 1890), narrates two cases of diphtheria (and one of scarlet fever), in which the appearance of erysipelas as a complication intensified the initial disease, and did not prevent a fatal issue, and his conclusions on the effects of erysipelas inoculation are that it is useless, and should not be practised.

#### **16. Treatment of diphtheria by iodide of potassium.**

M. Zeuenk (*Vratsch and Bulletin de Thérap.*, Aug. 8, 1891) prescribes the iodide to the amount of  $1\frac{1}{2}$  grains daily for children of 1 year of age, and in older patients he increases the dose by  $1\frac{1}{2}$  grains for each year of age up to 14 years. To adults he gives 30 grains daily, varying the amount with the intensity of the attack. The treatment is continued when œdema comes on,

and when the false membrane becomes detached, which occurs in two to four days. The throat should be freely gargled with solutions of boric or salicylic acid in glycerin. Quinine is also given internally, and the cervical glands are rubbed with mercurial ointments.

#### **17. Treatment of diphtheria by paraffin.**

Mr. A. M. Sydney Turner (*Brit. Med. Journal*, Sept. 19, 1891) writes that he has treated thirty cases—children and adults—with paraffin. The diphtheritic patch is first scraped off and the paraffin then applied to the inside of the throat every hour with a large camel-hair brush; the ordinary paraffin used in lamps was employed. As a rule the throat gets well in twenty-four to forty-eight hours, and as improvement occurs the paraffin is used less frequently, but continued for two or three days after the disappearance of the patches. The paraffin must not be left to stand in an open vessel, as it loses its curative effect if long exposed to air. Mr. Turner gives the patient a generous diet, and administers internally tincture of perchloride of iron and potassium chlorate, but in some cases where the local application of paraffin alone was tried at first there was a decided improvement before any of the mixture had been taken. Mr. Turner suggests that the hydrocarbons in the oil have some powerful influence upon the membrane.

#### **18. Treatment of diphtheria by chloral.**

Mr. C. Hersch (*Brit. Med. Journal*, Sept., 1891) writes to recommend an old remedy, which he has recently used with much success—the local application at frequent intervals of a solution of chloral strength 3ii. to 3j. Under this treatment the membrane rapidly clears up.

#### **19. Treatment of diphtheria by submucous injections of chlorine water.**

A. Seibert (*Arch. Pedriat.*, June, 1891) gives the results of the treatment of thirty-five cases by injections of chlorine water by means of a specially constructed syringe into the inflamed mucous membrane beneath the diphtheritic deposit. The chlorine water is thus brought into direct contact with the active bacilli of the disease, and is said to destroy them, and arrest the complaint. After the chlorine water injections, a gargle should be used of iodine and carbolic acid in solution. The author insists that diphtheria begins as a local process, resulting from the action of the bacilli of Löffler and Klebs, which enter the mucous membrane and lead to deposition of membrane; the injection of chlorine water is much more efficacious than the removal of the



membrane, and Seibert lost only two of thirty-five cases treated by this method.

## **20. Treatment of diphtheria by bichloride of mercury.**

Mr. F. Coward (*Brit. Med. Journal*, 1891, vol. i., p. 14) has treated about sixty cases without one fatal termination by giving liquor hydrarg. bichlor. in drachm doses every hour at the onset, and then at longer intervals as the cases improve. The dose of a drachm is given to children as well as to adults, and in all cases the dose is given every hour for the first four or six hours, and then every two or three hours. Mr. Coward combines it with tinct. ferri-perchloridi.

With this treatment local applications, sprays, gargles, etc., are not wanted, but in severe cases poultices and the steam-kettle are useful. In most cases, after four or five doses, the membrane softens and peels off, and in no case so treated did any diphtheritic paralysis follow.

In commenting on this treatment, Mr. H. Mainwaring Holt (*Brit. Med. Journal*, vol. i., p. 223) confirms its efficacy, and recommends the addition of Fowler's solution.

## **21. Treatment of diphtheria by salicylates and iodine and iron.**

Mr. E. M. Knapp (*Brit. Med. Journal*, vol. i., p. 172) advocates the use of the following prescription:—Sodii salicyl, ʒii.; syr., ferri iodid., ʒss.; aq. ad ʒvi.; one tablespoonful (for an adult) in a wineglassful of water every hour till the physiological effects of the salicylate manifest themselves; afterwards the mixture should be given sufficiently often to maintain this effect.

Dr. W. S. Fenwick (*Brit. Med. Journal*, 1891, vol. i., p. 353) attributes these results to the iron contained in the mixture rather than to the iodine or salicylate.

## **22. Treatment of diphtheria.**

Loeffler (*Deutsche Medicinisch. Wochenschrift*, March 5, 1891) writes that to destroy the action of the bacilli, as a prophylactic measure, a gargle of corrosive sublimate solution 1 in 10,000, or 1 in 15,000 should be used by persons brought into contact with the disease. This should be employed every three or four hours. As preventive measures, vapours with oil of eucalyptus, oil of citron, toluol, etc., are of use. Persons attacked by the disease should gargle every hour with the above solution, or with a lotion of bicyanide of mercury of the same strength, which is less nauseous than the bichloride. In addition, gargles of substances which are known to destroy artificial cultures of the bacilli are recommended, and Loeffler specially recommends the following:—

Corrosive sublimate (1 in 1,000) with 3 per cent. of carbolic acid, dissolved in 30 per cent. of alcohol. After a short time the throat may be painted every three or four hours with 5 per cent. of carbolic acid, 2 per cent. of bromine solution, or 1 per cent. of chlorine water.

Oertel (*Deutsche Med. Woch.*, No. 45, 1890) believes in the value of local medication. But such treatment is powerless with respect to the membrane which is formed in inaccessible positions. He advised atomisation and inhalation of a solution of carbolic acid of 1 in 20 strength.

### 23. Treatment of diphtheria by cyanide of mercury.

M. de Ruelle (*Union Med.*, Oct. 27, 1891, p. 610) advises the administration of the following prescription:—

R Cyanide of mercury ... ..	0.5 centigr.
Alcohol ... ..	8 grammes.
Distilled water ... ..	192 grammes.

A teaspoonful every hour.

### 24. Treatment of whooping-cough by quinine.

Ungar (*Deutsche Med. Woch.*, No. 18, p. 615, 1891) remarks that since Binz proposed this treatment in 1868 it has been tried by various persons, and he insists on the value of it if sufficiently large doses of the quinine are given. He gives  $1\frac{1}{2}$  grain three times daily to a child one year old and increases the dose by another  $1\frac{1}{2}$  grain for each additional year of age. The chlorhydrate of quinine is recommended as being easily soluble, and absorbed readily; it may be given in capsules, or cachets, or hypodermically, or by enemata. The author never found any gastric intolerance or other troubles. And though the malady cannot be said to be cured by quinine, it is certainly alleviated and shortened in its course.

### 25. Treatment of whooping-cough.

Beltz (*Jahrb. f. Kinderh.*, xxxii.) finds that in all cases of whooping-cough there is more or less nasal catarrh, and by treating this there is often an immediate diminution in the number or intensity and duration of the paroxysms of the whooping-cough. The treatment advocated is insufflation of nitrate of silver solutions daily, or on alternate days.

### 26. Treatment of whooping-cough by chloroform inhalations.

F. Schilling (*L'Union Medic.*, Aug. 15, 1891, p. 238) treated sixty-two children, some of whom were only ten to twelve weeks old, by inhalations of chloroform. The strength used depends



on the age of the child, and the inhalations are repeated four times a day. The results are satisfactory, the disease stopping after a few days; in one case the convulsive period ceased in the first week, in four cases during the second week, in twenty-eight cases during the third week, in twenty-one cases after the third week, and eight times during the fourth week, and in no case was any disagreeable result produced by the inhalation.

**27. Treatment of whooping-cough by essential cypress oil.**

Dr. J. M. Bravo (*Revista Med. de Chile*, No. 7, 1891, and *Brit. Med. Journal*, Oct. 17, 1891) uses the oil distilled from the needles of the cypress tree, by dropping some of it on the child's clothes near the neck, or at night on the bed-pillow, so that the child breathes an air constantly impregnated with the volatile principle. The odour is not disagreeable, and the drug is rapidly successful in the treatment of whooping-cough.

**28. Treatment of whooping-cough by pure benzole.**

Dr. W. Robertson (*Lancet*, vol. ii., p. 289, 1891) recommends two minims of benzole in mucilage for a child of six months old, and five minims in mucilage on sugar, or in capsule for adults; he finds it more useful than any other method of treatment as was stated some years ago in the *Practitioner*.

**29. Bromoform in whooping-cough.**

T. Schippers (*Nederlandsch. Tijdschrift voor Geneeskunde*, Aug. 29, 1891, and *Deutsche Med. Woch.*, Nos. 31 and 44, 1889) found this treatment, recommended originally by Stepp, very efficacious. It is a clear liquid; to children of six months to one year old two minims, thrice daily, should be given, from one to two years of age three minims, from two to three four minims, and so on. He concludes that bromoform is a completely harmless remedy. It diminishes the number and severity of the paroxysms, shortens the duration of the attack, prevents the vomiting and nasal hæmorrhage.

Lowenthal (*Berlin. Klin. Wochenschrift*, July, 1890) employed the treatment with great success in one hundred cases.

## GENERAL SURGERY.

By STANLEY BOYD, B.S., F.R.C.S.,

Surgeon to the Charing Cross Hospital, and to the Paddington Green Hospital for Children

### I. New methods of operating.

*Treatment of hydatid disease by incision and evacuation of the cyst without drainage.*—C. J. Bond (*Brit. Med. Journal*, 1891, i., 795) suggests that hydatid cysts of the abdomen, which cannot be easily attached to the superficial wound and drained, shall be cleared of all elastic membrane and fluid, and that the ectocyst be then sutured and dropped, provided that the cyst has not suppurated and that it can be incised freely enough to allow the complete removal of the parasite. Case given.

*Inguinal colotomy.*—F. T. Paul (*Liverpool Med. Chir. Soc. Trans.*, Jan. 15, 1891) cuts across the sigmoid flexure, sews up and drops the lower end, whilst the upper is tied tightly on to a large glass tube, whence a rubber tube runs into a bottle of some antiseptic. The abdominal wound is closed round the gut as usual. When parts have healed, excess of bowel is cut off. Paul claims that in cases of obstruction the bowel may thus be safely opened at once. The arguments against the operation are :—(1) That the most experienced operators have not found such a modification necessary ; (2) that they have sometimes, in spite of every care, taken the lower for the upper end of the gut, a mistake which would probably have a fatal result in Paul's operation ; (3) that trouble would be likely to arise from faeces and discharge in the lower end prevented from escaping by the stricture. It is an advantage to be able occasionally to wash through the lower end of the bowel. [Probably the advantage of the method might be gained, and the dangers avoided, by tying a tube into both ends of the divided gut.]

*Operation for opening the posterior mediastinum.*—Quénu (*Rev. de Ch.*, No. 3, 1891) says that by cutting vertically midway between the scapula and spine, through skin and muscle, turning in the ilio costalis, resecting  $\frac{3}{4}$  inch of the third, fourth, and fifth ribs, and separating the sides of the wound, a view may be gained of the objects in the posterior mediastinum. He thinks the operation



will be of use chiefly in cases of foreign body impacted in the gullet.

*Temporary resection of the skull* ("Year-Book," 1891, p. 189).—This method seems to have been tried by a good many surgeons. Wagner himself (*Ctblt. f. Ch.*, No. 2, 1891) gives two fresh cases. In a girl of seven, who had become an idiot of the lowest class, with frequent fits, after a fall downstairs on occiput when two to three years old, Wagner raised a bone flap (11 × 9 cm.) with the skin from the occipital region. The dura was adherent centrally to the bone. Wound healed well; two fits occurred, two more after the operation; great general improvement, from "intolerable" to "tolerable." [Probably this case should be ranked with the craniectomies, p. 279.] In a child of three, idiotic, subject to fits, but able to walk, Wagner raised a depressed area towards back of one parietal, and fractured it, so as almost to undo the depression; the dura was closely adherent. The wound healed well; general result not given.

Wagner would use this method whenever the skull must be opened, the bone being uninjured. He regards exploratory operations on the skull, thus performed, as not more dangerous than exploratory laparotomy.

J. Toison operates by an angular flap, plants four small trephine holes at the corners, separates the dura, runs a fine saw from hole to hole, and cuts out, except at base, which is three-fourths divided and broken.

Lauenstein showed a skull at the last Congress with bone, which had been temporarily resected, united.

Mezler v. Andelberg (*Wien Klin. Wochr.*, No. 42, 1890) and Juan Justo (*Ctblt. f. Ch.*, No. 2, 1891) give very interesting cases in which Wagner's method succeeded perfectly.

Benda (German Congress, *Ctblt. f. Ch.*, No. 26, 1891) relates a case of osteoplastic trephining in adult male for traumatic epilepsy, with fits starting in the right leg, hemiparesis, and mental weakness. He raised a skin and bone-flap over the right leg centre, and excised the epileptogenous area, electricity being used to discover it. After four months of ups and downs, the patient's condition became highly satisfactory, both mentally and physically.

*Subhyoid pharyngotomy*.—Cramer (*Berl. Klin. Wschr.*, Oct. 27, 1890) successfully performed this unusual operation for epithelioma of the back of the pharynx, as large as a florin and reaching down to the epiglottis. Preliminary tracheotomy was done and a tampon-canula inserted. [Trial on the cadaver has shown us that this operation gives surprisingly free access to the whole posterior wall of the pharynx and to the glottis.]

*Lauenstein's operation for laying bare the ankle-joint* ("Year-Book," 1891, p. 187).—Having twice performed this operation for arthrectomy of the ankle-joint in young children, the **Reporter** can recommend it as giving good access to the joint, but not so easy or so complete as Hüter's ("Year-Book," 1891, p. 188), and it is certainly open to doubt whether the section of tendons, etc., in the latter operation leads to any greater impairment of function than results from Lauenstein's. In both his cases the **Reporter** cut through the osseous nucleus in the lower epiphysis of the fibula, not touching the "epiphyseal line"; finally the lower fragment was fixed in position by two fishing-gut stitches through the surface cartilage. In both instances the aseptic wound gaped; the result in the first is excellent; the second is healing, but there may be some necrosis of the cut-off malleolus.

## 2. *Anæsthetics.*

*An experimental investigation of the action of chloroform and ether.*—**J. A. McWilliam**, M.D. (*Brit. Med. Journal*, 1890, ii., pp. 831, 890, 948). Starting from the fact that the blood-pressure is no accurate indication of the heart-state, McWilliam took direct tracings from the auricles and ventricles, being careful, of course, to eliminate the effects of exposure of these parts and of the employment of artificial respiration. Cats were used. The effects of *chloroform* were:—(1) Fall of blood-pressure, slight or severe, slow or rapid. (2) Weakening of heart-beat, possibly due in part or entirely to diminished blood-pressure. (3) *Dilatation of the heart* (this is the main result of the research), with accompanying engorgement and non-emptying of the cavities. The dilatation affects all parts, but not equally, simultaneously, or in any order, and often occurs more or less markedly *before the conjunctiva is insensitive*. *No change of pulse-rate occurs even with great dilatation and wholly inefficacious contractions. The dilatation is due to the direct effect of chloroform upon the heart substance*, other possible causes being experimentally excluded. *Ether* formed a marked contrast with regard to this cardiac dilatation. Chloroform was given in  $\text{m}i.$  to  $\text{ij}.$  doses at a time, ether in  $\text{xxv}.$  to  $\text{xxv}.$  Even when the conjunctiva was insensitive, usually *no dilatation occurred*, but after large doses given suddenly, slight dilatation, lasting only a few seconds, was seen. When alternated with chloroform, dilatation produced by this drug passed off again and again during the administration of ether. Again, if in same animal chloroform were given, and the dilatation induced allowed to pass off, the subsequent administration of ether as a rule did not cause dilatation. When ether causes weakened heart-beat, it is probably through the vaso-motor centre (which is depressed by ether), *i.e.*, it is secondary to lowered blood-



pressure, *not* to direct effect upon the heart, for the heart does not dilate. Therefore, McWilliam holds Bernard's view, endorsed by the Hyderabad Commission, viz., that the physical action of chloroform and ether is almost the same, except that chloroform is the more intense, to be false; for ether will produce profound anæsthesia with abolition of the conjunctival reflex without effect upon the heart, whilst chloroform, before this stage is reached, may cause dilatation of the whole heart. [Still it would not appear to be proved that the difference in the action of the two drugs is not one of degree.]

As to the relative susceptibility of the vaso-motor centre and heart to chloroform poisoning, the former usually suffers first, and fall of blood-pressure precedes dilatation, but not always. On the other hand, the force of a strong heart may not suffer for a considerable time, whilst a weak one yields at once. A fall of blood-pressure is protective against the anæsthetic, but may be fatal if extreme. It is best counteracted by compressing the abdomen, especially the aorta.

In the great majority of healthy animals, when respiration stops, the heart is capable of maintaining a blood-pressure which, though low, is compatible with life. The cardiac change does not usually by itself induce death; the cardiac depression is associated with vaso-motor and respiratory failure. But it is likely that in some cases the cardiac factor will be the preponderating one in bringing about fatal collapse. This was so in three out of seventy animals, the respiratory effects continuing long after the heart had stopped. Artificial respiration by compressing the thorax, and even by pumping air in, failed to bring about recovery; but opening the thorax and compressing the ventricles between the finger and thumb, at about the pulse-rate, re-established cardiac contractions—in one case after thirty-five minutes from the time of collapse.

Finally, McWilliam draws special attention to the importance of noticing the time taken in the inhalation of a given quantity of chloroform. A deep breath may be five times as large as a shallow one, and with change in depth we often have the frequency increased twice or thrice; therefore, ten or fifteen times as much chloroform may be taken in in a given time. No accuracy in limiting the percentage of chloroform in the inspired air will guard against danger from this source.

*Morphia before chloroform.*—Dr. Sheppard (*Brit. Med. Journal*, 1890, ii, 1124) was of opinion that the German view—that morphia should be given hypodermically before chloroform, not before ether—was correct. Especially was it necessary in tongue and jaw

cases, as it considerably lessened the amount of chloroform necessary.

*Bichloride of methylene.*—Sir Spencer Wells (*Journal*, Dec. 20, 1890) reiterates in the Bradshaw Lecture his well-known preference for this anæsthetic, given with a Junker's inhaler.

*On the physiology of asphyxia, and on the anæsthetic action of pure nitrogen.*—George Johnson, M.D. (*Brit. Med. Journal*, 1891, i., 399), from experiments made for him by C. J. Martin, M.B., B.Sc., concludes that the immediate cause of death in asphyxia is arrest of the pulmonary circulation, due to contraction of the pulmonary arterioles; for, if these are paralysed by nitrate of amyl or otherwise, life is prolonged several minutes, and death ultimately results from the influence of venous blood on the cardiac and nervous tissues.

The phenomena of nitrous oxide inhalation are those of early asphyxia, and Johnson expected to get the same results from nitrogen. Woodhouse Braine gave nitrogen (containing 0.5 per cent. of oxygen and 0.3 per cent. carbonic acid) to fourteen patients; complete anæsthesia in each case, with exactly the same phenomena as with nitrous oxide. Frederic Hewitt gave it to nine patients, 58.3 secs. being the average time for the induction of complete anæsthesia. To five others Hewitt gave nitrogen with 3 per cent. oxygen; anæsthesia after 67.5 secs., and lasted somewhat longer than with the purer nitrogen. Lividity, dilated pupils, and jactitation occurred in all. To four other patients Hewitt gave nitrogen with 5 per cent. oxygen; anæsthesia in 87.5 secs., slight lividity at end in each, in one slight jactitation.

*New local anæsthetic.*—Chloride of ethyl. Redard (*Prog. méd.*, April 4, 1891). It is sent out in small flasks; the drawn-out end must be broken off, and the jet of volatilised liquid directed on to the part. The freezing is less intense and dangerous than that of chloride of methyl.

Dr. Lauder Brunton opened a discussion on anæsthetics at the annual meeting of the British Medical Association, expressing the views of the Second Hyderabad Commission ("Year-Book," 1891, p. 189). The believers in ether stuck to their colours.

### 3. Antisepsis and asepsis.

*Sterilisation of wounds.* Seydel (*Munch. med. Wschr.*, 1890, 47). *The best practical method of asepsis.* E. Kummer (*Rev. med. de la Suisse rom.*, 1890, No. 10). *Antisepsis and asepsis in surgery.* Terrier (*Rev. de Chir.*, 1890, No. 10). *Sterilisation of dressings in the Billroth clinic.* Gleich (*Wien. med. Wschr.*, 1891, 5).—Asepsis appears to be rapidly displacing antisepsis upon the Continent, and the journals frequently contain accounts of the various



methods by which it is attempted in different clinics to attain to this result. Many forms of apparatus have been described for exposing wool and gauze to superheated steam (generally  $120^{\circ}$  C.) for half an hour or longer. Many boil the *dressing-materials* in a potash or soda, or salt solution (0.6 per cent.), dry them, and, finally, sterilise before use. *Dabs* of disinfected gauze are used instead of sponges. For *irrigation* some use filtered and boiled water; some, warm salt solution (0.5 to 0.6 per cent.); some do not irrigate.

*Instruments* are boiled, except knives and needles, which are soaked in alcohol; or all are exposed to dry heat. Kummer boils all instruments in 1 per cent. salt solution, Tavis having shown that this will kill in five minutes germs which would live two hours in boiling water. *Catgut* is abandoned, and silk, sterilised like dressings, employed. Some use only *glass tubes*. *Hands and field of operation* are washed with soap and brush, then with sublimate solution or absolute alcohol, and finally with boiled water.

For infected wounds, most still use antiseptics; but Seydel claims better results from simply sterilised dressings.

*Lysol*.—P. Wehmer (*Berl. kl. Wschr.*, 1890, 52) and Simmon (*Ctbl. f. Ch.*, 1891, 7). Lysol is less poisonous than carbolic or sublimate, smells less than carbolic, is cheaper than either, mixes in all proportions with water, forming cloudy but quite effective solutions with undistilled water; it renders the skin supple and even soapy, and does not set on metal. A 2 per cent. solution is used by Wehmer for sponges, silk, catgut, and instruments; a  $\frac{1}{4}$  to  $\frac{1}{2}$  per cent. solution for irrigation of aseptic wounds and in labours. Simmon found that a 5 per cent. solution constantly and in a few minutes sterilised *fluid* or thin *fæces*; firm *fæces* were much more resistant. It is a good deodorant in carcinoma.

#### 4. Plastic surgery.

*Bone grafting*.—Forgue (Congress of French Surgeons, *Prog. méd.*, April 11, 1891) cleared out a tuberculous focus from the wrist of a man of fifty-five, leaving a large cavity; marked displacement of the hand was threatened. After a month, Forgue placed in the granulating cavity twelve pieces of bone with periosteum attached, taken from the growing ends of the tibia and femur of a dog. The fragments were not absorbed, and no displacement resulted.

*Transplantation of bone from dog to man*.—A. M. Phelps (*New York Med. Rec.*, Feb. 21, 1891) performed osteotomy for anterior curve of the tibia: non-union, in spite of many operations of various kinds by Phelps and another surgeon. To avoid amputation, a bit of bone of the "fore arm" of a dog, connected with the soft parts and containing the nutrient artery, was jammed in

between the ends of the boy's bone. The soft parts united, but not the bone; the graft was removed after five weeks, irregularly coated with new bone.

*Resection of fore-arm bones to allow healing in extensive wounds of the part.*—**Guermonprez** (*Prog. méd.*, April 11, 1891) had performed this operation with a marqueterie saw, followed by bone suture; excellent result.

*König's plastic operation for bony defects of the skull.*—**Schönborn** (Würzburg) (German Congress, 1891, *C. f. Ch.*, No. 26, 1891) showed a case where a bony defect from removal of bone in a fracture had been filled in. The cicatrix, measuring 14 cm.  $\times$  2 to 4 cm., was excised from frontal region, and tongue-shaped flap, 26 cm.  $\times$  7 cm., marked out parallel to and a finger's-breadth behind it in parietal region, extending over vault of skull. With a chisel held flat, the flap was raised so as to contain the superficial layer of bone beneath. The flap was secured in the frontal wound and the parietal wound, covered in by Thiersch's method. Perfect healing resulted, and skull vault showed normal form, was firm and unyielding, except at base of cicatrix, where the flap had overlapped the margin of the gap in the skull. A growth of hair in frontal region and bald patch in parietal necessitated retransplantation of frontal skin flap into parietal region and covering in of frontal wound by Thiersch's method, after which patient assumed a normal appearance.

In the discussion, **J. Wolff** related a similar case of smaller defect, with an equally satisfactory result. **Von Eiselsberg** had used a celluloid plate, made to fit firmly into a defect the size of a 5-mark piece. Skin wound healed over it per primam; result excellent.

*Creolin in erysipelas.*—**Rothe** (*Brit. Journ. of Derm.*, Nov., 1890) uses creolin 1·5, ol. menth. pip. gtt. 5, cret. præp. and adipis aa 15·0 spread thickly on the parts two to three times daily, and covered with wool. Improvement occurs in twelve to twenty-four hours, and cure in three to four days.

*Treatment of acute abscess without incision.*—**Piéchaud** (*Prog. méd.*, April 11, 1891). Piéchaud reported twenty cases of acute abscess in children, treated by aspiration and injection with 1·1000 perchloride lotion; all were thus cured, whether they contained streptococci or staphylococci: even when the skin is thinned, cure without sloughing may result.

##### **5. The treatment of tubercle in general.**

*Treatment by tuberculin* (Koch's fluid).—The literature of this subject is enormous, every civilised language having its contributions. There can be no doubt but that many entertained hopes of cure far beyond what was justified by Koch's original



paper (*D. med. Wschr.*, Nov. 15, 1890; *Brit. Med. Journal* of same date). But even the hopes there held out have not been fulfilled, and with the majority the remedy and the excitement which its introduction caused are rapidly becoming things of the past. Yet there are some who think that good may still come of a remedy which has such a very clear and decided action upon tubercular foci, and who are working at the subject. Chief among these is Koch himself; but his last communication (*Ibid.*, Oct. 22, 1891), reporting upon the isolation of what he believes to be the pure remedial agent in tuberculin and upon its effects, does not seem to brighten the prospect. Upon the whole subject the official report on the efficacy of Koch's remedy, published by the German Government, gives the largest collected mass of evidence. With regard to surgical tuberculosis, the discussions at the Association of German Surgeons (*Ctblt. f. Ch.*, No. 26, 1891), and at the British Medical Association (*Journal*, 1891, ii., 294), and Mr. Watson Cheyne's paper at the Royal Medical and Clinical Society (April 28, 1891) give a fair summary of the opinions held. Dr. Wm. Hunter's paper (*Brit. Med. Journal*, July 25, 1891) on the separation of the harmful from the remedial constituents of tuberculin is of great general interest.

In the German discussion v. Bergmann opened. (1) Whilst a *general* reaction after tuberculin occurred in non-tubercular maladies, *e.g.*, actinomycosis and sarcomata *which are softening* (a point of importance, as the diagnosis from tubercular disease of fluctuant sarcoma of a joint end may be desired), Bergmann has never seen a *local* reaction in these or other non-tubercular diseases. On the other hand, tubercular cutaneous and mucous lesions always reacted locally and strongly. (2) As to the danger or harmful effects of tuberculin in surgical tuberculosis (of skin, glands, bones, joints, or testes), difficulty arose from the fact that diffuse tuberculosis might appear at any moment. To establish the connection of general tuberculosis with the tuberculin treatment of a local external tuberculosis, the general disease must arise in direct connection with the treatment, and a post-mortem must prove the existence of general tuberculosis and show the absence of deep foci from which the general disease might have originated. Thus, Bergmann had three deaths from laryngeal cases; apical disease was found post-mortem, and Bergmann thinks that this, rather than the larynx, was the starting-point of the disease. Similarly florid phthisis developed after the nineteenth injection in a case of lupus, and Bergmann retires behind the fact that there was no post-mortem and, therefore, no proof that some *infective focus* other than the healing lupus was not the source of

the disease. But though he endeavours to establish the singular position that, whilst *deep* tuberculososes under treatment may give rise to general infection, *superficial* tuberculososes do not do so, Bergmann states that his cases have led him to the conclusion that the continued use of tuberculin does not prevent the outbreak of fresh tuberculososes, *i.e.*, that whilst under treatment a local disease may extend or a fresh focus may appear. (3) As to the beneficial effect of tuberculin and how it is brought about, Bergmann said that on watching the improvement of superficial tubercle one was inclined to think very highly of the remedy. The examination of excised pieces showed that the result of its action is an acute inflammation (Schimmelbusch and Karg, *Ctblt. f. Ch.*, No. 26) *not* necrosis (Koch). The inoculation of animals with bits excised from patients long under treatment caused death of the animals from tuberculosis. Also in patients markedly improved, well-preserved tubercles have been found microscopically in the originally diseased tissues after three months' treatment. At first Bergmann thought that by continuing the treatment these, too, would be eliminated; experience, however, showed that fresh nodules sprang up in the scar, grew, multiplied, and ulcerated. More than twenty patients who remained long enough under observation showed this. Other forms of surgical tuberculosis relapsed similarly. Bergmann has never seen a *cure* of a *joint*, except a tubercular hydrops, from tuberculin. He has seen a favourable effect upon tubercular tendon sheaths. He has not seen fistulæ heal until he scraped them out; has had no success with glands, often but little reaction; no success in five tubercular testes.

Roughly comparing with the first fifty cases treated with tuberculin the first fifty treated with v. Bruns' iodoform and glycerine, the result was that not one of the tuberculin cases was cured, whilst more than half of the iodoform cases were, and fewer of them ultimately came to resection. Bergmann tried first to get as much inflammation as possible, gave large doses at once and allowed considerable intervals; then he gave small and quickly repeated doses, inducing a state in which there was no reaction; lastly, he combined operation with tuberculin, but could not see that the latter helped. "Other plans must be tried."

König had found tuberculin of special value in tuberculosis of the mouth, which Thiersch confirmed. He had seen local reaction but no improvement in actinomycosis. Tuberculin does excite general tuberculosis, but not so frequently as operation does. Injection of a patient with one bad joint has several times led to the development (discovery?) of a second. He has not seen either lupus or a tubercular joint cured. Still König would use



tuberculin in small doses at long intervals and continue to study it. But nothing should make us forget what we have learnt as to the value of complete removal.

Max Schede brought forward the results of the treatment of 184 cases, apparently with very good results, which have led him to regard tuberculin as specific for tubercle. He had not seen a local reaction except with tubercle and possibly actinomycosis. He had no case of general infection from the remedy, though in two hopeless cases death was perhaps hastened by the treatment and widespread infection was found post-mortem; no ground for supposing that the result would have been different without the injections. Except in one doubtful case of laryngeal tuberculosis, he saw no spread of the disease under treatment; but many previously undiscovered foci were revealed, and the swelling up of them, when out of reach, might cause serious symptoms. Everything depends upon how tuberculin is used; especially has it been forgotten that bad cases are unsuitable, and that the tubercular tissue thrown off must have a way out provided. Koch was mistaken in thinking that large doses were desirable. Surgical tuberculosis, like pulmonary, must be treated with small doses; further, patients under treatment must be well fed, and, if possible, out daily—fresh air at all times being important. Twenty severe cases treated in private all *gained* weight, most very decidedly—obvious fallacies having been excluded.

Schede gives statistics of forty-one cases of spinal disease, fifteen of joint disease treated without operation, and fifty-one in which tuberculin was reinforced by resection, and smaller numbers of cases of tubercle of other parts. Many of the cases are quoted in full; the results are the best we have come across, and appear to justify the high esteem in which Schede holds the remedy. A child, 1½ year old, with arthritis of the knee, died; the knee was almost well, but there were recent tubercles in the post-peritoneal glands, which Schede thinks were present at the beginning and responsible for the constant general reaction. Of twenty-six cases of arthritis with unbroken skin, nine seemed cured, or so much better as to be almost cured, by tuberculin alone. Five were but little affected by the remedy, and eleven ultimately came to resection. In three there was nothing to explain the failure of tuberculin; in six there were large cheesy masses in the bone; in two improvement occurred up to a certain point and then ceased—resection revealed a large sequestrum. In one of these an abscess, almost bursting by the tubercle of the tibia at the start, had dried up. In closed foci, like joints, one can hardly expect to obtain absorption of large masses of fungous tissue; therefore in the

great majority of his cases Schede resected. Schede had not obtained any improvement in tubercle of the mouth, testes, or glands without operation.

After Lauenstein had reported favourably on the whole from his experience of forty-five cases, and Küster had said that he had seen a general reaction after tuberculin in a case of acute osteomyelitis, and a local reaction in a case of erythematous lupus, and one of diffuse lipoma of the thigh, v. Eiselsberg stated that Billroth's results corresponded with those of v. Bergmann. Von Eiselsberg gave at some length a case of hopeless actinomycosis of the belly wall; he reacted strongly to tuberculin, received fifteen doses from Dec. 5 to Feb. 11, varying from 0.01 to 0.25 grammes, which latter caused no reaction. Solid healing had lasted two and a half months. Schede also had seen great improvement in a case of actinomycotic nephritis. Thiersch summed up the opinion of the meeting as being that tuberculin ought still to be employed in the treatment of tuberculous troubles.

Cheyne, at the Royal Medical and Chirurgical Society, reported on the treatment of fifty-six cases. He had early abandoned Koch's method of administration, in which the occurrence of reaction was the guide to the dose. Cheyne gave, say, 2 milligrammes to start, repeated it as soon as fever had subsided, and after four or five doses no reaction occurred; then the same dose was given twice and then thrice daily. After three or four days the amount was increased till 1, 2, or more decigrammes were given thrice daily. Thus a large amount of tuberculin could be rapidly introduced with little fever and marked local improvement. Cheyne's microscopic work showed that under tuberculin the epithelioid and giant cells underwent degeneration, whilst the tubercle became infiltrated with leucocytes; then fibrous tissue developed and more or less replaced the tubercles, but the remains of these could always be discovered. Cheyne's experiments on guinea-pigs and rabbits had shown that tuberculin retarded very markedly the progress of artificially-induced tuberculosis; in one case the internal organs showed no disease. In man tuberculin at first induced some improvement in the majority of cases, but unaided it was rarely sufficient to effect a cure; after some time improvement ceased, and if the treatment were stopped relapse occurred. Tuberculin, combined with scraping, etc., is of great value in obstinate lupus. In glands it does little or nothing. In arthritis Cheyne would reserve it for cases of sinus remaining after operation; one or two doses might be given before operation to delimit the disease. In osteitis it will probably be useful only after operation. Full details of the cases are given together with



those of a case of leprosy which reacted strongly and was, perhaps, somewhat improved.

Cheyne opened the discussion on tuberculin at the British Medical Association under the three headings of (1) the beneficial effects, (2) the hurtful effects, and (3) the future of tuberculin. Under the second he mentions the many dangers of the treatment, and says that he had been increasingly impressed by the fact that not only does tuberculin not induce immunity, but it apparently, in some cases, *predisposes the body to tuberculous infection*, and he quotes observations and experiments in favour of this view. Under the third heading Cheyne speaks for himself and Dr. W. Hunter, who, having been similarly impressed by the remedial and harmful actions of tuberculin, had succeeded in separating the remedial element from those which cause fever, illness and depression, and inflammation (Hunter, *Brit. Med. Journal*, July 25, 1891). Cheyne gives the results of their joint clinical work with each of these constituents. Time had been too short for much testing, but, so far as they had gone, they hoped that they had found a substance (an albumose), which cured without causing fever or depression, and they hoped that anything tending to cause relapse had also been eliminated. (Apparently further experience has not confirmed their hopes, for little or no work is being done with the new substance.) Pringle gave four cases treated with these new solutions, and thought the result in three very encouraging. Keetley, from an experience of fourteen cases, spoke of tuberculin almost in the same terms as Max Schede did (see above). Jordan Lloyd had treated seventeen cases and condemned tuberculin strongly; it was valueless as a curative agent, was dangerous, did not always cause reaction in the markedly tuberculous, but had caused reaction in cancer mammae, ectopia vesicae, and granular lids—the two last patients being otherwise healthy.

*The use of an absorbable plug after operations on tubercular lesions.*—Kraske (*Beitr. z. kl. Ch.*, Bd. vii., and *Ctblt. f. Ch.*, 13, 1891). Kraske had obtained good results as to function and non-recurrence from plugs of iodoform gauze, but the removal of these caused pain and free bleeding. He now uses fibrin sterilised in sublimate and impregnated with iodoform, and stuffs it into cavities left by operations. It is slowly absorbed, the iodoform works constantly, and union by first intention is obtained.

*Treatment of tubercle by injections of zinc chloride.*—Lannelongue (*Le Prog. méd.*, p. 245, 1891), in imitation of recovery by obsolescence had injected chloride of zinc solutions round tubercular

foci, causing cell infiltration and formation of fibrous tissue. The injections caused considerable pain, much swelling, and fever up to 102° F.; the subjects gained weight. Small hemorrhages often formed at the seat of puncture and felt like abscesses, but no abscess formed in more than 2,000 injections. For joints and glands Lannelongue used 10 per cent., 20 per cent. for the epididymis, and even 40 per cent. for the lungs. In twenty joints and glands the improvement was marked, and some might be considered cured. Injections into the lungs had been well borne in two recent cases. If a joint was suppurating but unopened, the cavity was washed out with sterilised water, and the periphery was injected as usual. Sometimes the joint refilled and opened externally.

*Camphorated  $\beta$ -naphthol in the treatment of tuberculosis.*—J. Reboul (*Thèse de Paris*, 1840).  $\beta$ -naphthol is strongly antiseptic, and but slightly poisonous, 250 grains being the poisonous dose for an adult. Finely powdered, and carefully heated with powdered camphor, it forms an oily fluid insoluble in water, soluble in oils, alcohol, ether, and chloroform. Clinically camphorated naphthol has been used for washing out cavities and for application to surfaces after operation in tubercle, for all kinds of dressings, and for disinfection of instruments. Poisoning has not been noted. Slight irritation of tender skins disappears under boro-vaseline. Interstitial injections are painless. Accounts of numerous cases of tubercle treated with  $\beta$ -naphthol, camphorated  $\beta$ -naphthol, and other antiseptics are given; those treated with camphorated  $\beta$ -naphthol seem to have healed satisfactorily. It is eliminated by the kidneys; hence advantage might result from its use in urinary and other forms of internal tubercle.

*Oil of cloves in tubercle.*—A. Vannotti (*C. f. Ch.*, 2, 1891) recommends 10 per cent. oil of cloves in olive oil for injection into tubercular foci; dose up to 20 grains.

#### 6. Treatment of malignant growths past operation.

v. Mosetig-Moorhof (*Wien. kl. Wschr.*, 1891, 6; and *Allg. Wien. med. Zeitschr.*, 1891, March 17). Knowing that cell division starts in the nucleus, and that the nucleus has a special affinity for various dyes, Mosetig-Moorhof sought to tinge the nuclei of malignant growths with some reagent which would impair or destroy their multiplying power, hoping that healthy cells accidentally stained would cast off the tinge. He claims in 1883 to have cured a case of sarcoma of inguinal glands by injecting trichlorate of aniline; but the concomitant results soon led to the abandonment of the drug. Fresh experiments were made when Stilling introduced methyl violet ("Year-Book," 1891, p. 465) as a powerful non-poisonous antiseptic. Mosetig-Moorhof uses 3 to



6 grms. of a 1·500 solution filtered through asbestos. The injections are made from healthy to diseased parts, distributed so as to reach all parts of the growth, and repeated every two to three days. The following results had been obtained:—(1) F., 66, sarcoma of jaw, size of adult fist; after fifty injections = 120 grms. of 1·500 solution, it was so small as to be "almost" cured. (2) Cystosarcoma near sterno-clavicular joint, shrank markedly after 720 grms. of 1·300; and at time of second paper little remained of growth, perhaps only connective tissue. (3) Cancer of bladder; marked relief to the symptoms. (4) Sarcoma of pelvis, compressing rectum and necessitating colotomy. After fourteen injections (3 grms. of 1·500) marked shrinking and almost complete disappearance of symptoms due to compression of neighbouring organs. At time of second paper she was so much better that she had gone on a journey. (5) Cancer of tongue and floor of mouth, patient unable to swallow; after use of 26 grms. in two months, foul smell was gone, ulcers smaller, pain absent. (6) Epithelioma of face ten years; nose destroyed, cheek and eyelid infiltrated; nine injections, 20 grms., in thirty-four days; new growth in some places replaced by healthy granulations; health improved. (7) F., 60, vesical cancer, profuse hæmaturia; 20 grms. of 1·2000 solution used as an injection; bleeding ceased and patient could attend to her affairs. In sixteen cases the subjective improvement (cessation of pain) had been great, the objective satisfactory. Two patients died of causes unconnected with the treatment. No accident results from injection into the blood stream. The remedy seemed to cause a slow and gradual shrinking by elimination from a surface, by fatty degeneration and absorption in deeper parts. Billroth had tried methyl violet in twenty-five or thirty cases. In three sarcomata some softening, but no absorption, had been noted. Mosetig-Moorhof's cases were improved, but not cured. Billroth thought that distilled water would probably do as much.

*Resorcin in rodent ulcer* ("Year-Book," 1891, p. 203). — Bæck (*Monatsh. f. Prakt. Derm.*, 1891, p. 4) used Unna's resorcin plaster. The ulcer, 1½ inch square, of ten years' standing, "almost" healed in two months. Another, 1 cm. square, of six months' growth, healed quickly and entirely. Unna spoke of a similar case.

#### 7. Muscles, tendons, and fasciæ.

*Tendon suture.*—Barling (*Brit. Med. Journal*, 1890, ii., 1470). Two cases reported; carbolic gut used. In one, extensors of 3, 4 and 5 digits of both hands were divided, one being cut twice with an inch between. In the other a circular saw had

divided both flexors and extensors of the index finger and half an inch of bone. Recovery with perfect movement in each.

*Suture of tendons eleven weeks after division.*—T. P. Gostling (*Brit. Med. Journal*, 1891, i., 800). Ext. ossis met. poli. and primi internod. were divided at base of thumb, which was permanently flexed and adducted; proximal ends of tendons five inches apart from distal. Cut from one to the other, rounded-off ends pared and brought together by two catgut stitches. Thumb kept in extension, no drainage; healing per primam, all active movements of thumb restored.

### 8. Blood-vessels.

*Ligature at a distance in wounds of the palm.*—E. Rochard (*Gaz. des Hôpitaux*, 1890, 115). Rochard gives these rules:—Chloroform, render bloodless, disinfect thoroughly and enlarge; try and find bleeding point, loosening the tourniquet if necessary. If unsuccessful, tie the ulnar and radial above the wrist; this will certainly stop the bleeding. Again disinfect the wound, and lightly tampon it with iodoform gauze and compress lightly. The cases of recurrent hæmorrhage belong to pre-antiseptic days. Jaffé remarks that this treatment is already general in Germany.

*An address on aneurism.*—W. MacEwen (*Brit. Med. Journal*, 1890, ii., 1107). Most surgeons have endeavoured to cure aneurisms by the induction of the formation of red clots, which, in the presence of a vigorous blood-stream, are prone to disintegration, which organise rarely, shrink much and readily—so that a closed vessel may easily become again patent—and are liable to red and yellow softening with their accompanying dangers of embolism, simple or septic. White thrombi are not liable to these forms of softening; still, sepsis should be guarded against by rendering aseptic any sore, abscess or suppurating ear before beginning the treatment. White thrombi are formed at points bared of endothelium and irritated; they shrink but little, are very prone to infiltration, vascularisation and organisation, and the new tissue blends with the vessel-wall. Possibly, when a parietal clot has reached the level of the internal surface of the vessel it may become covered with endothelium and the tube be restored with very thick walls. Organisation goes on more rapidly and completely in the young; calcareous plates delay the formation and vascularisation of thrombi; the thinner the layers of thrombus the more surely they vascularise, but the slower the cure.

MacEwen's object is to irritate the wall of the vessel sufficiently to cause it to become infiltrated with leucocytes and to induce the deposit of leucocytes on it from the blood.



He uses a long, cylindrical and pointed pin, highly polished, and just strong enough to pierce the sac. He inserts one or more of these at a good distance apart, and gently scratches the opposite wall for ten minutes, then shifts to another spot and goes systematically over the whole surface: keeps pin and puncture surrounded by gauze, and for days keeps a moist carbolic dressing on the prick. MacEwen has operated again at intervals of weeks or months, but doubts the need for it; consolidation is slow and seems slower than it is. MacEwen gives four cases in illustration of his method; the aneurisms involved the thoracic aorta, and innominate, the subclavian, abdominal aorta, and the iliac and femoral, and a very remarkable degree of success was obtained in each instance.

*On ligature of the popliteal artery for the cure of aneurism in the ham.*—A. A. Bowlby (*Brit. Med. Journal*, 1890, ii., 1237). Bowlby discusses Holmes' conclusion ("Year-Book," 1891, 203) that no reason has been shown for the performance of Anel's operation in non-recurrent aneurisms. Bowlby gives two reasons—(1) Diminished risk of gangrene; (2) greater certainty of cure. Of twenty-three cases of ligature of the superficial femoral, gangrene occurred in four and recurrent pulsation in three, *i.e.*, gangrene or failure occurred in seven of twenty-three cases, the gangrene being never due to injury of the vein. (1) Gangrene is less likely if the popliteal be blocked close to the aneurism than if the popliteal be blocked and the femoral also. In one case of ligature of the popliteal, pulsation returned in the tibials in forty-eight hours, but the aneurism consolidated satisfactorily. (2) Recurrent pulsation and failure are due to a too free supply of blood flowing into the artery below the ligature and thence into the aneurism; tie the popliteal and this is impossible. Objections:—(1) Disease of the artery. Specimens show that the vessel is just as likely to be healthy at the upper end of the popliteal as in the superficial femoral. (2) No circulation will go on in the sac (Holmes). Small vessels and regurgitation will surely supply it with blood. (3) Difficulty. There is little choice; the popliteal is not so deep at its upper end as is generally thought, and the vein is avoided by keeping to the inner side. (4) Phlebitis and gangrene must be guarded against in both operations by asepsis and clean ligatures.

*Excision of sac of a large inflamed inguinal aneurism.*—Bazy (*French Congress, Prog. méd.*, April 25, 1891). M., forty-four; violet swelling, from  $3\frac{1}{2}$  inches above to 5 inches below Poupart, and from ant. sup. spine to pubes, feebly pulsating; heart-beats weak, 145 to 150 per min.; T.  $37.8^{\circ}$  to  $38^{\circ}$ , great pain;

no pulse in tibials, limb œdematous. Through an oblique cut down and in Bazy reached the iliac vessels, pushing the peritoneum up, tied both and divided between double ligatures; sac very thin, wounded, severe hæmorrhage; sac slit up, 700 to 800 grms. of clot turned out and cavity plugged; plugs cautiously raised, the profunda and one small vessel bled; former seized with long forceps pushed in behind sac; rest of removal easy. Ten inches of artery and vein were removed. Patient discharged, able to walk upstairs in four to five weeks; quite well eight months later. Bazy said that the great size of the sac was a reason for extirpating it, as a large aneurism must have caused collateral circulation to develop by pressing on its own artery. One may be sure that it has developed when parts beyond are well-nourished but no pulse is felt. In such cases extirpation is the method of choice. As to the vein, Bazy regarded it as already obliterated.

*Extirpation of a popliteal aneurism.*—S. Kimura (*Brit. Med. Journal*, Dec. 27, 1890). M., 37, large R. popliteal aneurism, limb œdematous, cold and dusky. Kimura rendered limb bloodless, made a 5-inch cut, drew nerve aside, opened and emptied sac—which was the size of a fist—tied popliteal above and tibials below, dissected off the sac with some difficulty from the posterior ligament of knee. Operation took less than an hour; good recovery.

*Diffuse traumatic popliteal aneurism.*—Damer Harrison (*Liverpool Med. Chi. Soc.*, March 26, 1891). M., 45; popliteal apparently pricked in tapping of enlarged bursa; fourteen days later sudden swelling and pain in knee; admission on 10th. Swelling 11 inches long on posterior and inner aspect of thigh, slight pulsation and thrill along popliteal, œdema and coldness of limb, no pulse in tibials. Knee at 150° and temperature 101°. Two pounds of blood turned out through a 5-inch cut on post and inner part of swelling; relation to hamstrings not clear; vein and nerve not seen; an opening of  $\frac{3}{8}$  to  $\frac{1}{2}$  of an inch in inner side of vessel, which was very friable; it was partly cleaned, divided, further cleaned, and tied with gut. Limb warm and of good colour in three hours. Wound four months healing. No stiffness or contraction of knee after nine months.

*Ligature of the trunk of the saphena magna for varix.*—Trendelenburg (*Beitr. z. kl. Ch.*, Bd. vii.) Trendelenburg revives the old method of P. Aegineta, Paré, and Sir Everard Home—that of tying the trunk of the saphena in two places and cutting between. He says that the dilated spots of the vein lie below not above, the valves, the vein walls being weakest here.



### 9. Nerves.

*Suture of nerves.*—Hulke (*Lancet*, April 18 and 25, 1891) records two cases of immediate suture of the median for division by glass. Both wounds suppurated in spite of the strictest antiseptic precautions. In one, recovery was perfect in two months as regards sensibility, but there is no note as to the thumb muscles. In two, the ulnar also was divided; some return of sensation occurred, but after ninety-three days the interossei were markedly wasted. In a third case, suture of median and ulnar was done six months after division by glass; sensation was almost lost on palmar aspect. The distal ends of both nerves were bulbous; the ends of median could not be approximated by  $\frac{1}{4}$  inch; yet in ten days there was some return of sensation over median, as well as over the ulnar area. The improvement was not maintained, and the final result was not encouraging.

G. H. Hume (*Lancet*, Sept. 19, 1891) records two cases of excision of sarcoma from the great sciatic, and one from the int. popliteal followed by suture. In the first of the two sciatic cases 6 inches were excised, and the patient recovered with complete loss of motion and sensation in the great sciatic area; wasting, feeble circulation, and slight trophic ulcers developed, but the man was able to walk by means of his quadriceps, which fixed the knee, and converted the leg into a prop. In the second case the ends were sutured in part, but with great strain. Return of sensation and motion slow, but six months after operation sensation was everywhere present, except on both aspects of the toes, and the hamstrings were acting well; flexion and extension of the ankle were lost, but there was little wasting. Later sensation diminished in foot, but enough remained to enable the man to feel unevennesses in walking. Death after two years from secondary growths. The third case was reported in *Lancet*, Aug. 21, 1886. Three inches of nerve were resected, and a gap of 3 inches left. When seen after four years, the limb as regards sensation and motion was almost as good as that of the other side.

Ward Cousins (*Brit. Med. Journal*, 1891, i., 1024) sutured a median five years after division; the ends were separated by a mass of fibrous tissue, which was excised. Severe pain was lost, and movements of fingers, which had been fixedly flexed, were restored; she was able to sew well, but sensation was only partially restored in the first and second fingers.

*Removal of Gasserian ganglion for severe neuralgia.*—W. Rose (*Lancet*, Nov. 1, 1890). F., 60; severe pain persisted in spite of stretching inf. dental, excision of a piece of this nerve in the dental canal, and excision of pieces of it and of lingual above

sigmoid notch. The sup. maxilla was first removed, foramen ovale exposed, and a ring of bone round it removed with a trephine; Gasserian ganglion was freed with an aneurism needle, and removed in pieces with hooked forceps and a bistoury; dura uninjured, bleeding slight. Ulceration of cornea, necessitating removal of the eye, followed; otherwise, progress steady. At time of report no return of pain; sensation and motion lost in area of inf. dental, and taste lost over anterior half of left side of tongue. Since this case, Rose has operated at least twice (cases not yet published), following a route through the pterygo-maxillary region, leaving the upper jaw in situ; and he has also protected the eye from injury by sewing the lids together over it.

#### 10. Lymphatic glands.

*The ultimate results of the extirpation of tubercular glands.*—**W. von Noorden** (*Beitr. z. kl. Ch.*, Bd. vi.) Noorden records the results of cases in König's clinic, no case being less than three years from operation. Of ninety-three cases sixty-two had no recurrence in three to fourteen years; in thirty others there was local recurrence; a recurrence was not noted later than six years from operation. **v. Noorden** calculates that about 28 per cent. of patients with tubercular glands die of some other form of tuberculosis; this is almost always phthisis, bone and joint disease being exceptional in these cases.

#### 11. Bones and joints.

*Massage in fractures.*—**O. Meyer** (*Inaug. Diss.*, Leipz., 1890). Meyer deals chiefly with twenty-seven cases of fracture of the radius treated by Kölliker on ulnar splints, with light effleurage commencing on third, employed every second or third day, and gradually increased to complete massage. Union was unusually rapid, and movement, especially supination, perfect. In the introduction, Meyer states as a fact that massage is a valuable adjunct in the treatment of fractures, especially into joints, even in fractures of the patella, as Rossander first proved.

**Crickx** (*Lancet*, Oct. 25, 1890) recommends massage for fractures of the fibula, radius, patella, olecranon, and processes such as the epi-trochlea and styloid. He uses no splint or only a hollow pasteboard one in which the limb may lie. Crickx begins with light centripetal effleurage, avoiding the seat of fracture for the first few days, then increases the force, and about the tenth day does petrissage of the muscles.

*The limits of the employment of rest and the use of movement in the treatment of fractures: 167 cases of lower limb fractures in illustration.*—**K. Smigrodski** (*C. f. Ch.*, 1891, 8). Rest in a certain degree and up to a certain time is useful, but is generally



used too long and too rigidly ; S. keeps patient in bed until all pain and reaction have subsided (five to ten days) ; he early applies a starch-over-wool splint with millboard or lead strips in it. So soon as it is dry, patient is told to move his toes as much as possible. When pain is gone, a Thomas's splint is applied, and he gets about. After seven to ten days the starch is removed, and sometimes massage and movements are employed ; but, as a rule, they are unnecessary. Union took half as long again in women as in men, because, Smigrodski thinks, they would not get up so soon and move about. No bad results, but two cases show that excessive movement may delay union. As regards time of union, Smigrodski's results are considerably better than the averages as given by von Bruns.

*On operation for fracture extending into joints.*—W. W. Cheyne (*Brit. Med. Journal*, 1891, i., 570) considers that, as joints can be opened with so little risk, certain cases of fracture extending into joints should be cut down upon to restore fragments to their proper places, to fix them there, and to remove any which are useless and tend to lock the joint. As examples, he records : 1. Two cases of chipping of considerable fragments from the head of the radius by direct violence, and their displacement between the bones so as to greatly impair the movements. In one the fragment was not removed until seven weeks from the accident when adhesions had formed, and they caused much difficulty in the treatment. Excellent movement was obtained in both cases. 2. F., 52 ; drunken, feeble, with bronchitis and infantile paralysis of right leg, fell and fractured neck of left femur. It was all-important to obtain union of left femur, but general condition forbade long recumbency. Cheyne, therefore, operated as for excision of hip by ant. incision. The upper fragment was the head and small trochanter ; extension brought the shaft down to the neck, a short cut was made on to great trochanter, two holes were drilled through it into neck, and the two were fixed together by ivory pegs ; plaster splint and light extension. Wound healed on 11th ; finally bony union, trochanter slightly above Nelaton's line, moving in the arc of a large circle ; patient able to get about much as before operation with one crutch. 3. Injury to elbow with much swelling obscuring the diagnosis ; incision on outer side, and removal of loose fragments of ext. condyle and of coronoid process ; olecranon found broken, and wired through posterior incision ; good and increasing movement after three months. Cheyne thinks these injuries of the elbow specially suitable for this treatment. 4. M., 26 ; dislocation of patella out, probably of two years' duration ; replaced,

edges of tear in capsule and vastus int. pared and sewed up after removal of much villous synovial membrane. Union per primam; passive movement begun on 16th. He could bend knee to 90° in two months.

*Treatment of old luxations of the shoulder.*—Kocher (*D. Zeit. f. Ch.*, Bd. xxx., s. 422) recommends his method for old dislocations; he gives all details, photographs of stages, anatomy, pathological anatomy. Twenty-eight old dislocations are recorded; twenty-five were reduced—some without anæsthesia—and five were more than four months old. In rotating out head, Kocher broke the shaft once and the head off twice. In one case the shaft was pushed into the socket with a very good result. The cases which were resected because they could not be reduced were irreducible because of fracture of the neck or tuberosities, and the formation of masses of callus, etc.

*Treatment of acute osteomyelitis.*—Lauenstein (*D. med. Wschr.*, 46, 1890). In accordance with recent recommendations, Lauenstein treated two cases in boys of sixteen and fifteen—one, spontaneous, of the upper, the other, after a sprain, of the lower end of the tibia—by early incision, evacuation of the pus, elevation of the periosteum, gouging out of the spongy tissue so far as it seemed infiltrated, and plugging with iodoform gauze. Healing by granulation in nine and four weeks respectively resulted, and the neighbouring joint was unimpaired.

*On the treatment of large tubercular abscess associated with bone disease.*—A. E. Barker uses, with caution, his now well-known flushing scoop, because the strong stream through it removes most easily the lining membrane as it is loosened by the scoop. When all fragments are washed out all fluid is expressed, 2 or 3 ounces of iodoform emulsion are run in, stitches are inserted, excess of emulsion expressed, and the wound closed. A wool dressing is so applied as to squeeze together the walls of the cavity. The method yields good results also in tubercular abscesses of the neck and other parts, the scar being very slight.

Mayo Robson (*Brit. Med. Journal*, 901, i., 1891) reports ten cases, all but one spinal abscesses, and five in adults (twenty-one to sixty-three years), treated by repeated aspiration during several months, followed by the injection of ethereal solution of iodoform (3ii to 3i) and coupled with the ordinary treatment by rest, etc. Some little pain is felt when the ether expands.

G. A. Wright (*Brit. Med. Journal*, 905, 1, 1891) incises at the most prominent point, excises as much as possible of the sac, scrapes out thoroughly, follows Barker's plan, except that he flushes after he has scraped the interior, and he uses perchloride



or boracic lotion. He gives a dozen cases, chiefly joint abscesses, and all in children. In two gluteal abscesses from spinal disease the cavity refilled; it was opened and drained with good result. Wright states that he gets similar results in tubercular dactylitis by clearing away the disease and closing the wound.

[All these cases, especially Robson's, are a tribute to the value of iodoform in tubercular cases. In addition, Barker's paper illustrates the convenience of his flushing scoop.]

*The results of resection of the knee.*—Boeckel (*Prog. méd.*, April 4, 1891) read this paper at the Congress of French Surgeons. Resection is practicable at all ages, but must be sparingly carried out in children. (Does it then amount to more than an arthrectomy?) It has succeeded in subjects over eighty. It must be done early, and is preferable to arthrectomy, even in the young; no drainage is used, careful hæmostasis and suture of bones are practised. Of sixty-one resections thus performed, fifty healed per primam under one dressing; six healed after fistulæ had lasted six to eight weeks; one was amputated for recurrence after three months; three died—of influenza at 82, cerebral complications at 62, and of phthisis eight months after operation.

*Total resection of the tarsus for tubercle.*—Gross, Michaud, and Poncet (Congress of French Surgeons, *Prog. méd.* April 11, 1891) read accounts of cases of advanced disease thus treated, and protested against amputation, as the routine treatment, for such. Gross says recovery occupies twelve months; ultimate result satisfactory, foot bears weight of body easily. The operation is not done according to rule, but so as to spare important parts (Poncet).

## 12. Central nervous system—brain.

*Tubercular meningitis, paracentesis of theca vertebralis.*—W. E. Wynter (*Lancet*, May 2, 1891) reports from the Middlesex Hospital four clear cases of this disease, in which paracentesis of the theca in the lumbar region was performed—in two by Southey's trocar passed between two lumbar spines after a small cut had been made through the skin; in one the laminae were exposed and theca punctured with a knife, and in one a lamina was divided, the theca incised, and its edges sewed to the wound. In all three drainage was used, but in none was the flow of fluid maintained; as it ceased, symptoms returned, and all ended in the usual way. Post-mortems showed no evidence of harm from the operations.

C. A. Morton (*Brit. Med. Journal*, 840, ii., 1891) read a paper based on the pathological appearances of several cases; on the whole he does not anticipate much benefit from tapping the theca.

*General paralysis of the insane.*—**T. Claye Shaw** (Annual Meeting, *Brit. Med. Journal*, Sept. 12, 1891) gave the histories of the two cases reported in the "Year-Book," 1891, 212, adding that the second man was readmitted rather weak five to six months after his discharge; four months later he was seized with right-sided convulsions, and died in two days, thirteen months from the operation. An exploratory incision was made over the trephine aperture, but little fluid escaped, and the symptoms were not relieved. At the Brookwood Asylum, F., thirty-nine, with general paralysis, was trephined at a spot near vertex, which was tender and the seat of a headache since a blow. Slight convulsion and loss of consciousness at dressing on third and again on seventh, now passing into a state of semi-coma, with restless delirium; on fourteenth she entered on steady recovery, the delusions and headache were both cured, and she was apparently very well three months after her discharge, and seven from the operation. **Batty Tuke** (*Ibid.*, Jan. 4, 1891). Another case.

*Tapping and drainage of the ventricles in meningitis and hydrocephalus* ("Year-Book," 216, 1891).—Several cases have been reported under this heading, and in a few benefit seems to have resulted. **Mayo Robson** (Annual Meeting, *Brit. Med. Journal*, Dec. 6, 1890). F., ten, with "basal meningitis of left middle and posterior fossæ" from left otitis. On forty-third day T. 103.5, right hemiplegia and aphasia, twitching of arm and tonic spasm of thumb, almost complete unconsciousness, dilated pupils and double optic neuritis. Trephined over right arm-centre; no pulsation, no pus in temporo-sphenoidal lobe; clear fluid drawn off from the ventricle, pulsation restored, wound closed; slight movement in arm next day, then in leg, questions answered on third, all paralysis gone in a month, slight limp only after two months. Mayo Robson makes the useful suggestion that after marking the convolutions on the scalp the point for the trephine should be marked on the skull with a fine drill.

**Bruce-Clarke** (*Ibid.*) spoke of a case of chronic meningitis with  $\frac{1}{2}$  inch of fluid on the surface, which died on the 4th, apparently from sudden draining off of so much fluid. He had seen another case of chronic hydrocephalus similarly fatal. He thought it was impossible to cure purulent local meningitis by tapping ventricles—a view which was illustrated by Kendal Franks.

**Kendal Franks.** Child ill a week, semi-comatose, paralysis of right, paresis of left side. History of otorrhœa: Trephined over posterior part of temporo-sphenoidal lobe, no pulsation, no abscess; full stream of clear fluid escaped from ventricle, and a tube was put in; consciousness recovered in afternoon; pressure symptoms



again next day unrelieved by clearing tube; death on 4th. Post-mortem: A very little sanio-serous fluid in ventricles and purulent tubercular meningitis at base.

A. Broca (*Rev. de Ch.*, No. 1, 1891), M., 3, symptoms noted at 7 months. Severe right-sided convulsions at 2 years, followed by hemiplegia and contracture, passing off in a few weeks; same on left side at 3 years. Two months later Broca found sutures closed, inarticulate cries only, convulsive movements of left upper limb. Trephined ( $\frac{5}{8}$ " rather more than 1 inch above and behind right meatus; bulging and no pulsation, large trocar pushed in towards opposite meatus; at 4 cm. clear fluid escaped (3iii), and a tube was left in and wound closed; discharge moderate; tube removed on 15th, there having been no discharge for eight or nine days. After three weeks the child seemed more intelligent, slept well, no contracture, convulsive movements less, no cries, tried to stand.

Dr. Lawson (*Brit. Med. Journal*, 1891, i., 636) established syphon drainage from the lateral ventricle into carbolic through a hole drilled on one side of the mid-line in M., 7, hydrocephalic, blind, paralysed in all limbs, with agonising headache and occasional epilepsy. Power in limbs and voluntary control regained, sight improved. The tube slipped into the ventricle on 7th, and death followed on 8th. Lawson suggests that it would be best to tap the lower end of the theca.

Illingworth (*Brit. Med. Journal*, 1891, i., 755), M., 3, slowly increasing hydrocephalus, with sleeplessness, pain, and bulging, visibly pulsating anterior fontanelle. Southey's trocar passed into ventricle through fontanelle, fluid spouting out two feet (3ii), collared canula tied in for a week under bino-iodide dressings. No bad symptoms, and anterior fontanelle became depressed.

[Surgical treatment still offers no hope in tubercular meningitis; less acute cases like Robson's, probably of a mild septic type, may recover if the brain is relieved from the pressure which otherwise would speedily kill; cases of hydrocephalus can certainly be handled very freely if kept sweet, but we have yet to learn that permanent benefit is derived from the treatment.]

Several interesting cases of trephining for epilepsy and other regions were recorded in the discussion on cerebral surgery at the French Congress which was opened by a paper from Horsley. The following seem worthy of special note:

*Non-traumatic meningeal hæmorrhage.*—Michaux (*Prog. méd.*, April 4, 1891), M., admitted unconscious with left facial and right brachial paralysis, which spread to right lower limb in a few days. Then convulsions appeared of the right limbs, becoming general and finally almost continuous. The man had fallen, but

there were no surface signs of injury; he was much given to alcohol and absinthie; had much albumen and little urea in urine and no cardiac lesion. Diagnosis: Spontaneous cortical hæmorrhage; three large discs removed over left Rolandic line, dura opened and two considerable clots escaped. Rapid recovery, with speech somewhat impaired and right arm rather weak.

*Cerebral cyst.*—Doyen (*Ibid.*), M., 16; for nine years had shown weakness of intellect, epileptic fits and left hemiplegia; right eye-sight lost. A wide fissure was found in right, squamous. Doyen diagnosed a simple, probably cystic tumour, trephined and let out from an intra-cerebral cyst more than a third of a litre of albuminous fluid. Well in two months; mind has now been sound two years.

### 13. Spinal cord and spine.

Two cases of angular curvature; paraplegia, laminectomy. Arbuthnot Lane (*B. M. J.*, 1891, i, 1227). Both were young adults, one with mid-dorsal, the other with lower dorsal disease; both paraplegic with greatly impaired sensation. In the first the cord was stretched over a considerable cavity in and about the bodies; it was cleared out and several sequestra removed; glycerine and iodoform; healing per primam; rapid recovery of motion and sensation, then relapse as regards motion; examination showed tubercular infiltration of muscles and all parts round cord. No good done. In the second, cord was squeezed and abruptly narrowed between body of tenth and laminae of eleventh. Slow improvement; able to move legs well on 25th. Five months later, acute paraplegia and cystitis; cord found stretched over tense abscess, which was cleaned out, drained and injected daily through metal tube. Complete recovery of motion, etc.; still waiting for consolidation.

Lane has operated eight times; all patients feeble, some with tubercle elsewhere; one died of rectal hæmorrhage, spine doing well; one relapsed, only slight benefit from two operations; one, no improvement; five apparently permanently cured. Prolonged rest would have done harm in all.

*Operative treatment of Pott's disease.*—Chipault (*Arch. gén. de Méd.*, Dec., 1890), thirty-five cases: dura opened, cord examined; jacket after healing. Twenty were improved or cured; progress slow. First, sensation reappears from above down, then motion from below up; sphincters recover early. There may be no improvement, cord being too much damaged or remaining compressed; or relapse may occur from recurrence of pressure. Death may result from the operation, general tuberculosis or progress of the disease. Grave and long-standing cases may recover, especially



in children. With disease of an arch, the whole focus should be removed. In disease of the bodies, operate only in severe cases: (1) of acute compression (no time for delay), and (2) of slow progression towards a fatal ending.

**Schede** (*Ctblt. f. Ch.*, 91, 26) chiselled away the laminæ of the first and second dorsal vertebrae and drained a large abscess starting from body of first in M., 8, who was so bad that he had to be kept in a permanent bath. Tuberculin was then used. The bed-sores healed, and at time of report the boy was in bed with constant weight extension on his legs to undo contraction.

**Spina bifida occulta.**—**T. Jones** (*Brit. Med. Journal*, 1891, i., 173), M., 22; at 17 painful cramp, wasting and weakness of left leg began, later of right; double equino-varus developed and finally perforating ulcers on each side. Ross found a spina bifida in upper lumbar region which had undergone spontaneous cure and been forgotten by patient. A dense transverse fibrous band grooving the cauda deeply was cut away at level of second lumbar; position of feet corrected; able to walk without difficulty in six months.

Excision of the sac of spina bifida is reported more frequently than formerly. **Mayo Robson** (*Brit. Med. Journal*, 1891, i., 759) successfully removed one containing more than four pints.

**Hydatid cyst of sacral canal.**—**Bazy** (*French Cong., Prog. méd.*, April 4, 1891) operated on a lady of 45 (seven months before Gower's and Horsley's case of tumour) for a cyst compressing the cauda. She died in three weeks from suppurative nephritis from foul catheterism. Bazy records also an exploratory laminectomy which failed to reveal the cause of a paraplegia.

**Fracture of spine: laminectomy.**—**Golding Bird** (*B. M. J.*, 1891, i., 1124), F., 32, fell 30 feet, striking back on edge and breaking arch of twelfth dorsal; both motion and sensation much impaired; respiration chiefly diaphragmatic, control over abdominal muscles and sphincters lost; all reflexes normal, no clonus. On 3rd motion was all but lost, especially on left. Removal of twelfth arch which pressed on cord, especially on left side; eleventh also removed, as it seemed displaced forwards; clot on dura removed; dura and contents apparently normal. Wound sealed with gauze in iodoform collodion. Complete recovery; she sat up without leave on 18th, and was as active and well as ever in eight weeks. Golding Bird would explore every case in the hope that he might find symptoms from pressure.

**Dr. Knox** (*Glasg. Med. Journal*, April, 1891) removed laminæ of tenth dorsal in M., 13, with fracture of body of eleventh, and dislocation backwards of eleventh on twelfth; there was complete

loss of motion and sense, but not of control over sphincters. Normal sensation next day, toes moved in three days, then stationary for two months; could stand and walk a few steps in twelve months; leg muscles increasing in size.

#### 14. Surgery of the thyroid.

*Parenchymatous injection of iodoform in goitre.*—Kapper (*Deutsche med. Wschr.*, 1891) confirms Moorhof's results. Iodoform 1; ether, and olive oil, āā. 7; prepare fresh and keep from light. Inject aseptically a syringeful at various places if goitre is large, inserting the needle an inch or more; repeat every four to six days. Reaction slight; some burning round wound, pain in head, and cough of short duration. Eight men and six women treated. After ten injections all showed decrease of  $2\frac{1}{2}$  inches, at least, in circumference of neck, and two months after the end of treatment, a decrease of 3 to 4 inches.

*Exophthalmic goitre.*—Lemke (*Deutsche med. Wschr.*, 1891, 2, 47). M., seventeen; typical symptoms, with hoarseness and pronounced dyspnoea, preventing him from working. Attempt to perform low tracheotomy led to free bleeding, and the isthmus, which ran down behind sternum, had to be hurriedly divided to allow of laryngotomy; bleeding ceased after a few inspirations. After eight days the left lobe was removed, separation from the trachea being difficult, and also the middle lobe, which ran 2 centimètres behind sternum. Seven months later the patient looked a healthy young man; all symptoms had gone. Encouraged by this result, Lemke removed the right half of the thyroid in M., forty-seven, ill many years, long unable to work; typical symptoms, hearta-rhythmic, pulse uncountable, both legs much swollen. Behind the right lobe lay a tumour, the size of a small fist, which bled freely and had to be rapidly removed. On second day the eyes were less prominent; after six months, left half of thyroid had dwindled, heart-action was normal, and the patient was at work and able to walk considerable distances.

*Thyroid grafting in myxœdema* ("Year-Book," 1891, 219).—M. Muklen. F., forty-one; a lobe of sheep's thyroid, taken from living animal at time of operation, was placed in subcutaneous tissue below breast, no antiseptic being used. Metrostaxis ceased in three days, and did not recur in three months; swelling of face and pseudo-lipomata diminished, and speech became more natural.

*Treatment of myxœdema by hypodermic injections of an extract of the thyroid of a sheep.*—G. R. Murray (*Brit. Med. Journal*, 1891, ii., 797) The improvement in Bettencourt and Serrona's case ("Year-Book," 1891, 220) began the day after operation; it could



not be from the gland becoming vascularised and functional, and it was suggested that it was due to absorption of thyroid juice. Vessale (*Ctblt. f. d. med. Wiss.*, 1891, 174) made intravenous injections of an extract of thyroid in dogs, after thyroidectomy, with beneficial results. Murray tried the method on a well-marked case of myxœdema with a history extending back four to five years. He removes a lobe of a sheep's thyroid as soon as possible after death, clears off all fat and connective tissue, chops it up in a sterilised dish with a sterilised knife, places it in a pure tube with 1 centigramme of glycerine and 1 centigramme of 0.5 carbolic solution, plugs the tube with wool, and lets it stand in a cool place twenty-four hours; he then pours the mixture on to a fine handkerchief just removed from boiling water, and by screwing up the handkerchief squeezes out as much fluid as possible;  $\text{m.l.}$  of a turbid pink fluid are thus obtained, and will keep fresh for at least a week in a small stoppered bottle. It should be made fresh each week. At first give  $\text{mxxv.}$  twice a week, with full antiseptic precautions, into the loose skin between the scapulæ. After a time the injections are made less frequently. At first a weaker solution was used, so that in three months he injected the extract of only  $2\frac{1}{2}$  thyroids; improvement was steady, and no relapse had occurred in the three weeks between the two last doses. Swelling of hands and face gradually diminished, and expression improved proportionately; drawl almost disappeared; mind and body became more active; she does her housework with less effort, and walks out alone without hesitation. For last six weeks she has menstruated normally, the flow having been absent four years; for four weeks the skin has been less dry, and she perspires when walking; she is not so sensitive to cold, and three morning temperatures lately have been  $98^{\circ}\cdot 2$ .

Hurry Fenwick (*Ibid.*, 798) has a preliminary note to the effect that for several months he has been injecting once every two to three weeks  $\text{m.x.}$  of fresh thyroid juice mixed with  $\text{m.x.}$  of distilled water. He has been chiefly struck by the diuretic action of the remedy, the urine rising in one case from  $3\text{xx.}$  to  $3\text{l.}$  He is inclined to think that "the theory of the action of the diseased thyroid gland is incorrect, and that the state known as myxœdema depends upon a perverted renal function."

To the whole subject of diseases of the thyroid and their treatment, J. Berry's "Hunterian Lectures" (*Brit. Med. Journal*, June, 1891) are a valuable contribution.

#### **15. Purulent pericarditis: pericardiotomy and drainage.**

H. Bronner and Teale (*Brit. Med. Journal*, 1891, i., 350). F.,

11, probably had influenza; great difficulty throughout in diagnosis. A right empyema supervened on pneumonia; later chloroform was given, hole in right pleura being blocked, and Teale punctured pericardium in fourth space, with a trocar, 1 inch from sternum, and, finding pus, incised outwards and drained; nearly 2 pints of sweet pus. Orthopnea disappeared, and temperature fell, but pulse and respiration remained high, and death occurred on twenty-sixth day after operation; no post-mortem. Of four cases, two (uncomplicated) recovered quickly, one pyæmic and the above died. West (*Ibid.*, 404) thinks the above was pyæmic, and that the dangers of incision are exaggerated. The chief difficulty is the diagnosis from dilated heart. Washing out the pericardium is no more dangerous than washing out the pleura, from which West has never seen a bad result, though practising it freely. West's patient is now a full-grown man, equal to any ordinary work.

P. Davidson (*Brit. Med. Journal*, 1891, i., 578) records a pyæmic case. M., 6, acute neurosis of third metatarsal with abscess over eighth rib, in which pus was found by hypodermic, and 8 ounces were let out by incision in fifth space; death seven days later. Also, a case of left empyema M., 12 years, in which needle showed pus in pericardium eleven days after opening empyema; several ounces were let out through the fourth space, and complete recovery, with healing of both wounds, occurred in five weeks.

#### 16. Operative treatment of pleural effusions and surgery of the lungs.

S. W. Lewaschow (*Ctblt. f. Ch.*, 1891, 8). So soon as a patient begins to complain of pain during aspiration, Lewaschow pumps in sufficient sterilised normal saline solution to remove discomfort. He thus succeeds at one sitting in removing practically the whole effusion, and replacing it by a little saline which is absorbed with some fever. In serous effusion cure always resulted without a second operation; but if done during fever with increase of effusion, absorption is slow. In two quite recent cases of *empyema* a cure was similarly attained, but in older cases he has always had to incise.

*Syphon drainage or incision with resection of ribs in empyema.*—Opinions in Germany are much divided on these points. Bülow (*Zeitschr. f. kl. Med.*, Dec., 1890) gives cases showing the advantage of his method in assisting expansion of the lungs, even after 15 months' compression. When considerable expansion has occurred, the syphon tube may be replaced by a short tube with a flap of goldbeater's skin. A. Fränkel (*D. med. Wschr.*, 1891, 17) speaks strongly in favour of this plan, unless pus is putrid. J. A. Gläser



(*C. f. Ch.*, 1891, 8), on the other hand, balances the results of eleven cases of syphonage against those of twenty-one of resection. These are against syphonage, and Gläser adds some not very convincing arguments. Simple incision without resection is sufficient to cure most *early* empyemata. He recommends Hahn's winged hard-rubber tube, and a long rubber tube to be passed through it for washing out.

O. Fräntzel (*Charité Annalen*, xv. Jahrg., s. 288) is now convinced that pus is not uncommonly absorbed from the pleura. He, therefore, aspirates and waits three to four weeks before adopting other procedures.

*Double empyema.*—Several cases have been recorded and treated by incision of both pleuræ, with a few days' interval between the incisions. S. Coupland and Pearce Gould read a case at the Clin. Soc. (*Trans.* 1891, 79) in a child of 7 years; Fred. Taylor, another at 2-10 years; Voelcker (for Sturges), a third at 5 years; and Handford (*Brit. Med. Journal*, 1891, i., 1076), gives one at 7½. All healed quickly except Sturges' case, and that did well after resection of some ribs. Godlee had obtained a good result by washing through chest from puncture in front to one behind, when incision seemed unadvisable.

*Use of tuberculin combined with the surgical treatment of cavities.*—Prof. Sonnenburg (*Deutsche med. Woch.*, Jan. 1, 1891) has combined the injections with surgical treatment of pulmonary cavities, with the object of allowing the escape externally of any necrosed tissue resulting from the former. In three patients, with a cavity at the apex, the pleura was firmly adherent over the site of operation. The operation was performed as follows:—An incision was made, beginning at the sternum and extending from 10 to 12 centimetres outwards parallel to the clavicle and from 1½ to 2 centimetres below it. The lower edge of the first rib was then laid bare by division of the pectoralis major, the periosteum of the rib detached, and an arched portion cut out of the lower border of the rib with forceps so as to enlarge the intercostal space. The pleura was then exposed, and a puncture made into the cavity with an exploring syringe, by which pus was withdrawn; and the thermo-cautery was then introduced into the cavity along the track of the needle, a little thick muco-pus welling up when the cavity was reached; the cavity and the wound were stuffed with sterilised cotton. In the fourth case the pleura was not adherent, and pneumothorax was produced, from which recovery speedily ensued, the lung becoming adherent to the chest wall. The injection of Koch's fluid was commenced as soon as the slight reaction from the operation had subsided. In

all the cases a considerable amount of necrotic lung-tissue was expelled as a result of the injections, after which the cavities began to shrink, and in three of the cases became nearly obliterated; the patients gaining weight and the bacilli becoming fewer. In a patient with a cavity in the right apex which was laid open, Koch's treatment was not employed for a fortnight after the operation, and the cavity remained greasy and discoloured; and showed no tendency to heal; but as soon as the injections were begun the wall of the cavity was transformed into a healthy granulating surface.

*The direct application of tuberculin to pulmonary cavities.*—**Dr. E. Leser** (*Münch. med. Woch.*, No. 8, 1891) relates two cases in which he laid open and emptied large tubercular cavities in the lung, and applied tuberculin directly to their interior. In the first, a 1 per cent. solution was painted on the wall of the cavity with a brush; and in the other, solutions of increasing strength were injected into the cavity. In each, well-marked febrile reaction followed, with dyspnoea, local pain in the lung, and increase of cough, together with considerably greater secretion of fluid from the walls of the cavities. Up to date both patients, who were adults, had much improved. Leser holds that when cavities exist in the lung Koch's method should not be adopted until a free outlet for the secretion has been established by operation.

*Pneumotomy for gangrene.*—**Bastianelli** (*C. f. Ch.*, 1891, 11); resection of ribs, cavity opened; death in fourteen hours. Had collected twenty-seven cases—seven recovered, one improved, nineteen died; best results in gangrene, after embolism and pneumonia, worst when coupled with bronchiectasis.

*Hydatid of lung; aspiration: death.*—**Bristowe** (*Trans. Clin. Soc.*, 1890, Dec. 12). M., 9, aspirated for supposed left pleurisy; little fluid escaped, but  $\frac{3}{4}$  3 to 4 soon came from mouth without coughing. Death in seven minutes with cyanosis and great distress. Post-mortem, cyst in lower tube opening by rent into a bronchus. **T. Acland** had seen a similar case which recovered; **F. C. Wallis** an exactly similar case, and **S. Phillips** another. **G. F. Duffey** (*Trans. Roy. Ac. Med. Irel.*) met with similar symptoms while aspirating a boy of three; he rallied slightly, but dyspnoea recurred, and death followed in thirteen hours. Post-mortem hydatid of pleura between diaphragm and right lung, displacing latter greatly.

#### 17. Mouth and tongue.

One hundred and four cases of excision of whole tongue.—**Whitehead** (*Lancet and Brit. Med. Journal*, May 2, 1891). One



hundred and four cases of total excision with twenty deaths. In excision of tongue alone death-rate is only 4.5 per cent., rising to 77 per cent. when the glands have been removed, to 57 per cent. when the jaw has been removed. Whitehead anaesthetises profoundly at first, slightly afterwards; has head held erect, slightly inclined forwards, so that light enters well, blood runs out, and mouth is on level of surgeon's axilla; stress is laid on free division of ant. pillars; the freer the oozing the faster he cuts to get to the main vessels, stopping only for a spurting artery which he twists; he paints floor of mouth with sublimate (1:1000), and, after drying, with iodoform styptic varnish (Friar's balsam with the spirit replaced by ethereal solution of iodoform containing 1 part by vol. of turpentine in every 10), which checks oozing; it should be used daily, and patients like it. Whitehead feeds by mouth with liquids as freely and as early as possible, makes them sit up from the first, and often sends them out into the sun on the second day. He is opposed to preliminary tracheotomy, having lost two of nine cases. In a case of recurrence in glands, Whitehead removed the sternomastoid and carefully cleaned parts beneath; œsophagus was involved, but patient lived several months free from pain which led to the operation; loss of the muscle occasioned no inconvenience. One of Whitehead's patients ultimately took 30 grs. of morphia thrice daily; it did not interfere with his interest in his surroundings, but kept him entirely free from pain. Butlin said that partial removal of the tongue was usually all that was required, and was justified by the rarity of recurrence *in loco*. He recommended the plan of uniting the edges of the wound.

#### **18. Surgery of the abdomen—general points—wounds—peritonitis.**

*Penetrating wounds of the abdomen.*—[Cases are of great importance just now to help in determining whether the expectant treatment or laparotomy is right, or in what cases each should be employed.]

*Wounds of stomach and intestine.*—Reclus (*Bull. de la Soc. de Ch. de Paris*, t. xlv., p. 447) gives five cases of perforating bullet-wounds of the abdomen, all treated with opium freely or opium and ice, and all recovered. There was no obvious sign of wound of a viscus in any. On the basis of ninety-one cases collected during the past fifteen years, Reclus says that 75 per cent. recovered, and he repeats the conclusions given in the last "Year-Book," p. 224, as to when laparotomy is necessary.

*Treatment of penetrating wounds of intestine.*—Berger (French Congress, *Prog. Méd.*, April 4, 1891). M., 18, revolver bullet in

abdomen: vomited once, general state excellent; suddenly pulse failed, aspect changed, and abdominal pain came on; laparotomy, double perforation of small gut and hole in cæcum, no extravasation, reddish fibrinous effusion between intestines; holes sewn up, peritoneum not washed out, wound closed; recovery after gaping of wound and an attack of jaundice. Berger had had seven cases in two years: two recovered after stabs; five revolver wounds—one of cæcum and one of stomach recovered without operation; of three of small gut only above case recovered. Berger advised that, where there is no peritonitis or only subacute (of slow course), no operation should be done.

Dr. Harbordt (*D. med. Wschr.*, 1890, 39). (1) M., 20, bullet in epigastrium. Laparotomy after an hour. 5 mm. wound in an almost empty stomach, similar one in transverse colon; no aperture of exit, no extravasation; Lembert's suture: healed in three weeks. (2) M., 27, bullet-wound in epigastrium; laparotomy after an hour, patient being anæmic, apparently from loss of blood; xiphoid cartilage resected, to expose a bleeding track in liver; bleeding slight; abdominal wound closed—gaped from irritation with bile, but still healed quickly. (3) Punctured wound of abdomen; opening enlarged; no injury to viscus; wound closed: recovery.

Köhler (*C. f. Ch.*, 1891, 7) reports three cases of bullet-wound of abdomen which Bardeleben treated expectantly:—(1) Peritonitis, for which laparotomy was done on 4th. Post-mortem, no wound of bowel, but laceration of spleen and kidney. (2) Recovery in 5 weeks, after slight peritonitis. (3) Recovery in 6½ months, after elimination of fragments of perforated ilium and escape of fæces from both apertures of entry and exit.

W. Macewen (*Brit. Med. Journal*, 1891, i., 34). Gunshot wound: several perforations of gut found by Senn's method and sutured, also obstruction due to doubling of wounded bit of gut; bullet was removed. Recovery.

Anderson (*Brit. Med. Journal*, 1891, i., 121, Nottingham Med. Chi. Soc.). M., 18, cart-wheel over abdomen; laparotomy, considerable intra-peritoneal hæmorrhage, abdomen washed out; recovery.

C. Dalton (*Journ. Am. Med. Assoc.*, 1890, xv., 20). Six cases of stab-wounds—patients all under 30; laparotomy; five recoveries; one death where laparotomy was not undertaken till fifteen hours after injury, and peritonitis was beginning; intestine wounded in five, free bleeding from mesentery in sixth; suture, washing out and drainage in some cases.

A. B. Miles (*Med. News*, Dec. 27, 1890). M., 24, shot in



hypogastrium ; laparotomy in half an hour ; three wounds of mesentery and sixteen of gut ; all closed by Lembert's sutures , operation over two hours ; rapid recovery.

T. W. Huntington (*Occidental Med. Times*, Dec., 1890). M., 43, bullet-wound through ilium ; operation five hours after, ball being felt near navel ; a perforation found of stomach and eight of small gut ; sutured ; abdomen closed ; operation  $2\frac{1}{4}$  hours ; rapid recovery.

G. A. White (*Ibid.*). M., 41, hypogastric wound at same time as last case. Operation declined ; violent peritonitis and pain round bullet ; incision here let out ball, fœtid gas, pus, and bits of bone ; slow improvement, and still under treatment (two months after injury).

Baretinskji (*Abstr. in C. f. Ch.*, 1891, 8). M., 63, wounded day before, stomach and omentum prolapsed and became fixed in wound ; condition filthy ; no peritonitis ; Baretinskji failed in an hour to reduce prolapse, therefore incised stomach, let out gas and contents by incision, tier-suture of wound and easy reduction. Patient at work in a month.

*Perforating ulcer of stomach — peritonitis — laparotomy — death.*—MM. Hélarý and Walther (*French Congress*). F., seventeen ; sudden acute general peritonitis three days ago ; great distension, evidence of fluid in left side of pelvis ; laparotomy below navel, much pus evacuated, appendages normal, appendix verm. removed and then found healthy ; exudation was much less severe in upper part of cavity, but whole cavity was washed out with water. Death in eight hours ; perforation of anterior wall of stomach, with slight recent adhesions binding it to liver and intestines. [The morbid anatomy seems to confirm the view of J. W. Taylor, of Birmingham, that these cases are to be treated by section low down, washing out of the peritoneum, and drainage from Douglas' pouch. Taylor thus saved a case of the kind.]

*Perforation in typhoid.*—S. Kimura (*Brit. Med. Journal*, Oct. 4, 1890). M., 34 ; perforation the size of a pea, two inches above the valve ; edges turned in with ten Lembert's stitches, cavity washed out with boracic, dried with sponges and drained. Death in  $9\frac{1}{2}$  hours. [In typhoid an occasional success is probably all that can reasonably be expected.]

*Suppurative puerperal peritonitis.*—J. Murphy (*Brit. Med. Journal*, 1891, i., 757, Oct. 4, 1890). F., 17 ; confined three weeks, ill two weeks ; abdomen much distended, T.  $104\cdot5^{\circ}$ . A gallon of stinking pus let out at once, the intestines being so matted around that it looked as if a suppurating cyst had been opened ; adhesions freely broken down, several gallons of warm boracic used to flush

cavity; large rubber drain, through which cavity was irrigated twice daily. Diarrhœa and vomiting retarded convalescence; temperature gradually fell, and she left hospital in six weeks. Now in robust health. [This case was probably never a case of "diffuse" suppurative peritonitis, and it would probably have been safer not to have broken down the adhesions round the pus.]

*Tubercular peritonitis.*—Maurange (*Nouv. Arch. d'Obstetr. et de Gynéc.*, Sept., 1890) had collected seventy-one cases treated by laparotomy; 83 per cent. recovered from the operation, and about half of these were doing well at the end of a year. Many died of other lesions, the peritoneal being quite cured. As to mode of cure, Maurange says that "the cavity is drained of cultivating fluid." He has seen good results from aspiration, antiseptic washing, removal of fluid, and then injection of variable quantities of iodoform (4·0 grs. in 100 grs. of liquid oil of vaseline), which may be safely repeated.

Sir Spencer Wells (*Bradshaw Lecture, Journs.*, Dec. 20, 1890), on the other hand, comments upon the curious fact that the same benefit in tuberc. peritonitis or papillomatous peritoneum is not derived from aspirations and removal of fluid as from incision.

Dr. Parker Symes (*New York Med. Journal*, Feb. 7, 1891), after recording the recovery of an obscure and apparently hopeless abdominal case, which laparotomy showed to be a tubercular peritonitis, says that, from a study of recorded cases, and especially of those in König's paper ("Year-Book," 1891, 226), the following conclusions may be drawn:—(1) The operation is of slight danger. (2) Sepsis is less likely than in the healthy peritoneum. (3) Tubercular infection of external wound does not occur. (4) Disinfectants are useless and drainage should not be used, lest a permanent sinus result. (5) If unsuccessful, the operation does no harm. (6) Established, but not advanced, phthisis is an indication for operation. (7) Laparotomy is the proper treatment of peritoneal tuberculosis.

Keetley (*Journs.*, Nov. 15, 1890) showed cases which had recovered, and said that the disease was curable in early stages. Keetley makes a small incision, dusts both sides of the mesentery (omentum?) with iodoform, passes a skein of iodoform silk into wound for a few days, and closes the wound on its withdrawal. His patients are up and out on the day after the operation. [This immediate result is certainly better than that obtained by most operators; unfortunately the Journal notices are very short.]

### 19. Stomach.

*Loreta's operation.*—J. W. Taylor (*Brit. Med. Journal*, 1890, ii., 1479). F., forty-three; constant vomiting for several months,



great emaciation; valvular obstruction found due to flexion of the stomach; stomach closed with continuous silk suture. Uninterrupted recovery; no return of symptoms.

*Pylorotomy and gastro-enterostomy—recovery* (*New York Med. Journal*, April 18, 1891).—Bull operated, cutting across stomach two inches above pylorus and duodenum half-inch below disease; ends sewn up and anastomosed with Abbe's catgut rings. Three hours' operation; pulse high for four days. Patient well, and suffering no inconvenience ten months after.

*Gastro-enterostomy* is now a well-established operation, and a good many cases are recorded, together with notes of the after-histories of previously-recorded cases. Kilner Clarke (*Brit. Med. Journal*, 1891, i., 798) reports good health ten months after operation of case referred to at p. 228 of "Year-Book" for 1891. Also another case—F., thirty-six, symptoms one year; pyloric tumour, large and firmly adherent; median cut, jejunum brought up to ant. surface of stomach, but the stomach was so small that the plates could not be approximated; wound in stomach sewed up and another placed in posterior wall, to which intestine was easily fixed. After three weeks the noise of fluid passing from stomach to intestine ceased, everything was vomited, and death occurred on 30th. No post-mortem, but everything suggested that this was another instance of closure of the wound; Clarke would oversew the mucous and serous edges of the wounds with silk and make larger incisions in the viscera.

Larkin (*Lancet*, July 11 and Aug. 8, 1891) reports an operation for extensive malignant disease in which it is *probable* that a similar accident happened, although the openings were over an inch long and the threads were passed as near as possible to the edges. Only the cardia in this case was free from disease; the jejunum was approximated by plates to the anterior surface, being brought through an opening in both walls of the lesser sac between the stomach and transverse colon. Peptonised milk was given on 4th, and enemata were discontinued on 10th. Symptoms of obstruction recurred after eight weeks, and became absolute in ten to eleven. Jejunostomy was then performed.

W. H. Brown (*Trans. Clin. Soc.*, April 24, 1891) reported a case for malignant disease with a fixed tumour and dilated stomach; *vertical* incisions in viscera were used, and jejunum was approximated to the ant. surface of stomach round the colon; it is claimed that the danger of *kinking* is much lessened by making the incisions vertical. Twelve Lembert's sutures were used round the plates; fluid by mouth on 2nd, solids on 20th. Relief from pain and gain in strength resulted. Death in four months.

Ewart and Bennett (*Ibid.*) operated on a wasted man of fifty-two, with a movable tumour of the pylorus of doubtful nature; a Lembert's stitch was used at each end to prevent tilting of plates. Great collapse, so that  $6\frac{1}{2}$  hours after operation he was given egg and brandy by mouth, and the same in small quantity frequently throughout the night. Up on 16th; solids on 28th;  $2\frac{1}{2}$  stones heavier after two months.

Wyeth (*New York Med. Journal*, Dec. 11, 1890) operated a year before report for a supposed fibrous stricture of pylorus. Vomiting, of mucus only, had been present the last two months, but washing out of the stomach was effecting improvement. Wyeth condemns pylorotomy altogether.

## 20. Intestines—Hernia.

*The treatment of hernia by median abdominal section.*—Lawson Tait (Annual Meeting, *Brit. Med. Journal*, 1891, ii., 685). Ordinarily, in treating a strangulated hernia more or less of a tendinous ring is divided, and to effect a radical cure the sac is removed. The former procedure leaves the patient worse off than he was before, and the latter is often difficult, and converts a simple into a serious operation. Three principles should guide us in these matters:—(1) Strangulation must be relieved without enlarging the ring; (2) the operation must be simplified as much as possible; (3) to effect a radical cure the peritoneum must not be the only tissue agglutinated, but also the surrounding fibrous tissue. Tait often had to deal with large irreducible herniæ at the same time that he removed abdominal tumours, and he had found that all the above requirements could be most easily and best fulfilled by dealing with the herniæ through a median abdominal wound, 2 inches long or so. His proposal, therefore, was to apply this method to all strangulated herniæ and to others requiring a radical cure. The advantages of the method are:—1. The diagnosis is accurate as soon as the finger reaches the ring; if the swelling is not a hernia no harm has been done, if it is a hernia it can be best reduced from within by gentle traction in all acute and most chronic ruptures. Pieces of omentum can be dragged in; they bleed where torn from adhesions, but the sites of adhesion do not bleed. If bowel is adherent it may be necessary to open the sac to free it. There will then be two wounds; but the abdominal one, which might, perhaps, have been done without, still facilitates reduction, and is of no practical importance. 2. No removal of the sac will be necessary. 3. The condition of the gut can be clearly ascertained, and objectionable contents of the sac cleared out. 4. If an artificial anus is required, the mid-line—not the femoral ring—is the place for it. 5. The non-discovery



of reduction *en masse*, or some form of double constriction is impossible. Tait does not think the method is of *universal* applicability, but it is certainly widely practicable. To effect a radical cure, place the left forefinger over the internal ring; take a pair of straight needles, held in a holder, with their points close together and threaded on to one piece of fishing-gut, and push them through one hole in the skin; then make them diverge so as to dip deeply into the external and internal pillars respectively, and draw them out in the mid-line; thus introduce as many stitches as may be necessary, tie all on the inner surface of ring, and the "cure" is effected. Many such have endured for periods varying from two to nearly twelve years. If a second opening has been made into sac the sutures may be passed from outside with a handled needle, and tied outside. In operating on inguinal herniæ in men, some device like Postempski's for protecting the cord would be desirable.

H. Widenham Maunsell had practised median section and a "radical cure" of his own for strangulated *femoral* herniæ since the beginning of 1887. *Advantages of median section.*—1. It is easier to pull than to push back gut or omentum. 2. Enlargement of ring is seldom necessary. 3. No danger to an epigastric from the obturator. 4. If gut is gangrenous the median incision can be extended, and any needful operation done with plenty of light and room. 5. No danger of reduction *en masse*. 6. A radical cure can be performed in three to four minutes. 7. No danger of wounding herniated gut with a knife. 8. A median wound, properly sewn up, heals most easily. The disadvantages attributed to direct herniotomy may be inferred from the above. It was said that after kelotomy the deep tendinous structures could *not* be brought into a position so as to close deep opening, and that ligature or twisting of the hernial sac often closed the outer end of the canal only. The existence of gangrene, or rupture of the gut, instead of telling against the operation, brings out the strongest point in its favour, viz., that you are ready at once to treat the bowel as may be necessary; no surgeon would establish an artificial anus at the unyielding femoral ring, and to resect an abdominal incision must be made. Maunsell had met with only one case in which he had had the slightest difficulty in pulling back the gut; he then passed a long-handled button-hook into the ring, and by gentle traction up and in he enlarged the aperture sufficiently to allow reduction. He would recommend this method for all strangulated herniæ. Maunsell performs his radical cure thus:—Under guidance of a finger over the ring, a curved, handled needle is passed from over the saphenous opening through the

pectineus fascia, and the attached edge of Gimbernat's ligament out through the median wound, threaded with stout silver wire and withdrawn; it is again passed through the same hole and, this time, above Poupart's ligament, just internal to the femoral vein, and it brings back the other end of the wire; the two ends are drawn tightly down, twisted, and cut short, when the ends fly up out of sight. Thus the ring and whole crural canal are securely closed. Maunsell would operate by abdominal section only upon femoral, obturator, umbilical, and diaphragmatic herniæ.

Many more or less opposed to the treatment of herniæ by abdominal section joined in the discussion. The objections raised were:—1. That in strangulated herniæ it would often be impossible to draw back the bowel; Keetley had himself failed, Jordan Lloyd and Mayo Robson had seen others fail. 2. That in strangulated hernia, if possible, it would be dangerous, because the bowel is soft, and often ulcerated along a line at right angles to the traction; because the sac often contains irritant fluids which would infect the peritoneum; and because the dragging of a burst or gangrenous piece of bowel into the abdominal cavity would do the same. [Maunsell would no doubt say that a sponge should be so placed in every case as to shut off the possibility of any such infection.] 3. That in old herniæ, with adherent and swollen masses of omentum, and always with adherent intestine, it would be necessary to open the sac. 4. That Tait was not practically acquainted with modern herniotomy and radical cure, and their results. 5. That his experience was gained in large chronic herniæ, which were very different things from strangulated. 6. That as to Tait's radical cure, his needles had to be passed more or less in the dark, the femoral vein seemed to be imperilled, if he really meant that in femoral herniæ the needles were to be passed through the internal and external pillars, whilst in inguinal ruptures he would be sewing up merely peritoneum and transversalis fascia, unless the two rings were opposite each other. 7. Keetley stated that in order to get the tendinous structures to unite the sac must first be got out of the way. 8. Lastly, whilst admitting that an abdominal incision might occasionally be useful, it was said (Lloyd) that it should follow the ordinary wound which was usually the most satisfactory. [This is probably the right view; for if gut were found gangrenous by abdominal section, no one would leave the sac closed towards the exterior; it is time enough to add the abdominal wound if there is difficulty in reduction, if there is gangrene, perhaps even if the gut is doubtful, or if the symptoms are not relieved.]

*Strangulated femoral hernia, median abdominal section.—*



H. Lupton (*Lancet*, May 9, 1891). F., 53, apparently dying of obstruction with no obvious hernia; knuckle of gut released from femoral ring; recovery. He contrasts this with another case operated on by the direct method, in which the symptoms persisted and caused death, owing to the pressure on gut of a fibrous band just within ring.

*On the treatment of strangulated hernia where the intestine is gangrenous or ulcerated.*—C. B. Lockwood (*Med. Chi. Trans.*, 1891). Thirty-five cases from St. Bartholomew's Hospital, and two of his own, all treated by incision, the stricture also being divided, if necessary, for a proper flow of fæces. Of the thirty-seven, thirty-three died; one, after several operations, during eight months, had a fistula; three recovered completely. One of Lockwood's cases had no proper flow of fæces, and histories of others also show that the usual operation cannot be relied upon to give relief. Other causes of death were—intra- or sub-peritoneal fecal extravasation, gangrene, or ulceration spreading to bowel within the abdomen, septic peritonitis spreading from sac, and inanition. Statistics of treatment by clamp, secondary suture and primary resection and suture, given, and a conclusion drawn in favour of the latter.

Mayo Robson reported two cases of gangrenous gut in femoral herniæ (both females, middle-aged and sixty) and omentum also in one; enterectomy, Lembert's sutures, gut returned, neck of sac tied; recovery. Bryant. Two-thirds of these cases were moribund on admission; in many more bowel above was largely distended and gangrene from stasis occurred here. Thirty-two post-mortems on gangrenous or ulcerating bowel showed no case of extravasation of fæces or general peritonitis. He would not disturb union at neck of sac, nor risk tearing gut by pulling it down; rather push it up and keep it near ring. Bennett. Resection would not secure proper flux of fæces if incision had failed; but fæces may be drawn off through a tube, after which bowels may act. Hulke would not disturb gut in any way, nor would he combine resection and radical cure. Treves said statistics of incision and of resection were not comparable, for latter were picked cases. He suspected that the general mortality of resection equalled that of incision, *i.e.*, 90 per cent. Of his own seventy-three cases, six were gangrenous and all died, two were left because of general peritonitis, one was incised, three were resected. He would resect only in a few selected cases. A. Lane agreed with Lockwood on the strength of the two following cases. Lockwood pointed out that before resecting it was essential to empty the upper part of gut.

*Two cases of resection of intestine by Senn's method.*—

A. Lane (*Trans. Clin. Soc.*, May 8, 1891). Both femoral herniæ in women of 53 and 55. The first was a case of Littre's hernia. After careful cleaning of sac and gut and notching ring, Lane made a median incision into abdomen, drew knuckle out, resected gangrenous piece freely, and established anastomosis between the ends, as figured in the "Year-Book," 1891, 229, an omental graft being used. No. 1 left the hospital in three weeks and four days; No. 2 rallied, but died suddenly on fifth day from gangrenous perforation of proximal end. At the operation this part was much distended and very friable. Lane thinks he ought to have resected more of it. Lane suggests that when gangrenous gut is found, median section should be done and anastomosis between the upper and lower segments of the gut effected; removal of the strangulated bowel must depend on patient's state. If possible, empty the upper segment before connecting it to the lower. If the gut is in a doubtful state, open abdomen, examine it carefully, and if unsatisfactory, effect anastomosis, and resect if need be. Always resect sufficiently widely to get into healthy gut, especially above the rupture. Cripps protested against this proceeding in bad cases. Lane replied that nineteen cases treated on the "do as little as possible plan" all had died. Parkin (Guy's) said that in eleven cases an artificial anus had been established and the average duration of life was seven days; of twenty-two cases of gangrene with perforation only one recovered. [The fact is that matters could hardly be worse than they were under the old treatment of gangrenous bowel; it is, therefore, quite justifiable to make a departure, and with Senn's method we may hope for some success.]

*The question of primary resection for gangrene.*—Kummer (*Beitr. z. Kl. Ch.*, Bd. vii.) publishes Czerny's hernia statistics. Eighty-three cases of strangulated hernia, sixty-one operations, gangrene present in fifteen. Artificial anus established nine times, four died, five recovered and healed. Drainage in one case. Excision of gangrenous patch and suture of wound, one. Enterectomy and suture four, one died, three healed without a symptom. Artificial anus and incision should not be brought into rivalry. Early peritonitis, collapse, and peri-hernial inflammation are contra-indications to resection.

## 21. Intestinal obstruction.

*Acute intussusception, resection, death.*—C. B. Lockwood (*Trans. Clin. Soc.*, 100, 1891).—Female, four, ill five days, tumour in right iliac fossa, exposed through right semi-lunar line, peritoneum split everywhere on attempting reduction, resection of mass and



wedge of mesentery, much time lost in stopping bleeding from latter; ileum, after emptying, sewn into colon with Czerny-Lembert stitches. Hot irrigation increased the shock. Operation one and three-quarter hours. Death in twenty hours. Lockwood thinks Senn's method of resection and anastomosis would have saved much time, and that removal of mesentery and irrigation were unnecessary. R. W. Parker mentioned a child in whom an acute intussusception developed upon a chronic; the former was reduced, the latter left and disappeared in some months.

*A case of intussusception, resection, recovery.*—J. v. Rosenthal (*Berl. kl. Wschr.*, Oct. 13, 1890). Female, 35, ileo-cæcal intussusception of nine weeks' standing, mistaken for a mesenteric tumour, was exposed, found irreducible and excised. The ileum was sewn into colon by Lembert's sutures, bowels acted on twelfth; there was scarcely any fever, and the patient was discharged in four weeks. Taking in Lockwood's case with fifteen collected by Rosenthal, we have sixteen cases and three recoveries.

*Jejuno-ileostomy for obstruction, the result of old intussusception.*—T. H. Russell (*New York Med. Journal*, Dec. 20, 1890). Male, 15, in bed ten months after acute obstruction, with increasing weakness, emaciation and recurrent, painful peristalsis; a soft fleshy mass had been noticed in a stool soon after acute onset. Laparotomy; small gut only  $\frac{1}{4}$  inch across about junction of jejunum and ileum, and adherent to adjacent coil. Anastomosis as suggested by Senn. Rapid recovery; normal stool on fifth and after; good health fifteen months later.

*Obstruction from gall-stone.*—Thiriar (*French Cong., Prog. Méd.*, April 4, 1891). Female, 51, acute obstruction of twelve days' duration, following on frequent attacks of vague pains and constipation, but no history of biliary colic. Patient greatly exhausted. Median laparotomy, hard mass in gut in left iliac fossa found to be a gall-stone (size of a small egg) with the bowel tightly contracted on it; removed through a longitudinal incision, which was closed by Czerny-Lembert sutures. Abdomen closed, bowels acted same evening, rapid recovery.

*Chronic obstruction, enterectomy.*—MacEwen (*Brit. Med. Journal*, i., 34, 1891). Girl, with tubercular family history; chronic obstruction five to six months, with occasional exacerbations and finally tumour in the right groin. About two feet of bowel found almost occluded by scar tissue; gut above very large, below very small; a fistula led through scar tissue from the upper to lower end. MacEwen excised the whole mass and sutured the ends of gut to one another. Perfect recovery.

*Chronic obstruction, colectomy.*—P. T. Hayes (*Royal Acad. Med.*

*Ire.*, Nov. 14, 1890) removed several inches of colon for cancer and patient lived nine months. Kendal Franks (*Ibid.*) removed a cylindroma as large as the fist (5") from the transverse colon, many glands and a V of mesocolon. Czerny's suture; patient well after three years and one month. Fifty-one cases showed that forty per cent. died from the operation. After-results not encouraging, recurrence being frequent. Operation justified in early cases.

Chavasse (*Brit. Med. Journal*, i., 121, 1891). Female, 45, annular "scirrhus" at junction of sigmoid and rectum;  $3\frac{1}{2}$ " resected with the neoplasm; the lower end closed, dropped, and the upper fixed in the wound. Three copious stools, each accompanied by syncope, followed, and the patient did not rally from the last.

## 22. Perityphlitis.

At the Clinical Society (*Trans.*, Feb. 13, 1891) H. W. Allingham read the case of a boy, 15, bent with pain in the abdomen from a fall the day before; three months earlier he had been ill for a week and had constipation. Temperature  $100.6^{\circ}$ , pulse feeble, tongue furred and drying, sharp pain in mid-line below navel; lower half of abdomen tense and tender, but not markedly so, no special tenderness, fulness or pain over the cæcum. Allingham did a median section twenty-four hours after the accident; pus welled into the wound; the appendix was perforated and adherent to cæcum, and by it lay two faecal calculi. Appendix excised, cavity washed out with warm water, drained; slow, but perfect convalescence. Sutton (*Ibid.*) read four cases: two ordinary localised abscesses, one retrocæcal abscess, one recurrent typhlitis. In all the appendix was found, apparently easily, and excised, and all recovered quickly.

Andrew Clark read two cases: first, general peritonitis at operation; washed out; death on fourth. Second did well.

Treves reiterated his views: that the great majority of cases recover under rest, opium and fomentations; that the diagnosis of appendicitis from cæcitis (which may be very acute at first) is very difficult, but that in young patients a swollen appendix may often be felt per rectum; that, probably, no cases should be operated upon before the fifth day, for cases of death on the third or even the fourth are almost unknown [Treves apparently puts aside as distinct from perityphlitis cases in which acute and diffuse peritonitis arises from the appendix; these, he says, are to receive the treatment of acute peritonitis, viz., immediate section. He appears to be right in impressing upon surgeons that operation is not usually required before the fifth day and often not till later, but to say that "probably no case should be operated on



earlier, because death on third or fourth is almost unknown," seems to be going too far; Allingham's case would very likely have been dead or moribund by the fifth. Each case must be carefully watched, and grave symptoms, especially a failing pulse, should lead to operation on any day. See Israel's remarks below]; that the abscess should be opened directly and no search other than the shortest made for the appendix; and that the ligatured stump is best treated by attaching it to a neighbouring piece of peritoneum.

Pearce Gould, in acute localised cases, makes a 1 to 1½ inch incision directly into abscess, avoids breaking down adhesions, and removes no appendix, for, if ulcerated, it becomes buried in lymph, and if gangrenous, thrown off; therefore wait till the abscess approaches the surface, open, wash out, and drain; all pouches, and there may be many, should be cleaned and drained, for a pouch overlooked might lead to general peritonitis. [Cases thus treated generally do well; but we cannot think that through such short incisions it is possible always to find and wash out lateral diverticula or to find and remove a calculus. Even healing occurs, as Gould says, in the great majority of cases; but sometimes a very chronic sinus persists and requires careful watching.] In acute perforative peritonitis Gould washes out by a median cut and plants another over the appendix to allow the direct escape of slough.

Kingston Fowler could not agree with Treves that mild cases and those which recovered were cases of cæcitis due to stercoral ulcers; stercoral ulcer being rare and occurring only in cases of faecal accumulation far greater than what is usual in typhlitis. He would not deny that inflammation of the cæcum *might* sometimes be the cause of the symptoms, but he knew of no evidence pointing that way; all post-mortem evidence went to show that the appendix was the seat of the mischief.

At the Medical Society of New York (Feb., 1891) W. W. Keen read a paper on "Appendicitis: the indications for early laparotomy," giving the most recent American views. Keen says (1) that there is a mild form from which post-mortem evidence would seem to show nearly one-third of all adults have suffered; it is mistaken for indigestion, colic, etc., and should not be operated upon. (2) *Perforative peritonitis* demands instant laparotomy. (3) In localised cases pus is formed much earlier than is generally thought. Keen agrees with Fitz that the third day is not too early; he would operate on the second and certainly on the third, if—1, There is *abdominal pain most marked in the right fossa*, especially with *tenderness at McBurney's point*, perhaps with

nausea or vomiting. 2. *Temperature*  $100^{\circ}$  to  $102^{\circ}$ , not yielding to medical treatment. 3. *Rigidity of the right abdominal wall*. 4. *Increasing swelling and especially resistance in the right fossa*. 5. *Edema*. (Essential points italicised). If pus is found wash out with great care [Keen differs here from Morton ("Year-Book," 1891, 234), who always removed the appendix; but a tide against this as a universal practice seems to be setting in even in America (Weir)]; if no pus, find the appendix and, if abnormal, tie, cut off and invert it. The surgeon should be called in directly the diagnosis is made. Exploration in careful hands has little risk; for one case in which operation was a mistake ten can be shown fatal from delaying for tumour or peritonitis. Even in mild and apparently convalescent cases, if indications point even slightly to pus, operate; no patient nowadays should be allowed to run the risk of rupture of abscess and general peritonitis.

Sonnenburg (Free Association of Berlin Surgeons, Oct. 13, 1890) showed two cases of early extirpation of the appendix in perityphlitis. He makes a lateral incision as early as possible over the appendix down to the peritoneum; if at this depth he finds no evidence of pus either by touch or sight, he plugs the wound with iodoform gauze and daily palpates through the peritoneum. He insists, in spite of all criticism, that, practically, this two-stage method enables him to detect pus earlier than he otherwise could; that it brings about adhesion between the peritoneum and deeper parts and thus enables him to open an abscess early without having to cross healthy peritoneum; and that the removal of the resistance of the abdominal muscles tends to make the pus point in the direction of the incision. If no pus forms, the incision is allowed to close. No one supported Sonnenburg, but Israel was the chief speaker on the subject. He opposed the view that every case was to be operated upon. (1) The great majority get well on opium. (2) As the operation is not without danger, it is not right to subject to it those who would recover, if let alone, for the sake of those upon whom it may be desirable to operate early. (3) The operation is primarily to open an abscess; but often no abscess is present, therefore to seek for one in every case is not justifiable, and uniform removal of the appendix is even less so. Israel would remove it only when it presents free in the cavity. As to the two-stage operation: if pus is found when the peritoneum is reached, it is let out at once—the operation is one-staged; if there is no pus you plug and wait—perhaps no pus forms and the patient has been operated on for nothing, his cure is protracted and he is threatened with a ventral hernia. But only in favourable cases can you wait: with



danger threatening you must go on—it is “now or never,” and again the two-stage programme fails. Instead of operation in two-stages we should speak of an exploratory incision, which succeeds when pus is found, but is useless under other circumstances. It in no way facilitates the second stage or renders it less dangerous; for aseptic exposure of the peritoneum does not cause its adhesion to superficial, much less to deep, parts; there is no proof that the incision induces pointing beneath it, and Israel altogether doubts the greater ease of detecting pus through the peritoneum only. Israel operates at once in (1) perforative peritonitis; (2) in abscess appearing in two or three weeks, it makes no difference whether you open in one or two-stages; (3) it is the treatment of the first week which is difficult; abscess, if present, is deep and cannot be felt; adhesions are slight, and danger is proportionately great. Israel operates only with increasingly grave symptoms: rising pulse with steady or falling temperature, increasing pallor or slight cyanosis, or fresh rise of temperature with spread of previously localised tenderness and increased vomiting. If forced by these symptoms to operate, he does so at once and in one-stage.

Küster thought the most important point was whether Sonnenburg had always found pus in his early operations; Küster agreed with Gerhardt's teaching that no pus formed in 95 per cent. of the cases of perityphlitis; Rose and Langenbuch thought so too. A post-mortem was mentioned to show that a calculus may escape from the appendix into the peritoneum and become encapsuled without any abscess forming.

*Recurrent typhlitis.*—Successful cases of removal of the appendix are not uncommonly reported, and treatment by excision of the appendix has received the support of W. MacEwen (*Brit. Med. Journal*, 1891, i., 1022). He described a case in which, after some threatening symptoms, a jerky movement led to general peritonitis; within twelve hours he operated; the appendix was swollen, and almost ulcerated through; death, apparently from shock. MacEwen believed that the colitis which led to the enterectomy, alluded to at p. 248, began in the appendix. Treves (*loc. cit.*) said that operation in quiescent cases might be exceedingly difficult. He had twice failed to remove the appendix, and twice or thrice had been over an hour removing it. Gould believed that relapsing cases were 10 to 12 per cent. of all; therefore, it could not be said that the tendency to relapse after ordinary “medical” treatment was great. Relapse was generally repeated, but might ultimately cease; prolonged rest might cure, and to wait for suppuration would not add appreciably

to the risk. [Gould apparently thinks removal of the appendix unnecessary even here; but the frequency of the attacks, the extreme danger to life in some of them, and the complete inability to gain a livelihood, seem fully to justify the operation.]

### 23. Surgery of the liver.

*Hydatids.*—Iginio Tansini, of Modena, extirpated a *hydatid cyst*, excising a piece of liver with it; hæmorrhage very free, controlled by gut ligatures, and wound closed by sixteen silk-and-gut sutures; no fever; well in less than two weeks. Terrillon ("Year-Book," 1891, 239) performed a similar operation. He was able to bring a piece of right lobe, studded with cysts, out through an incision parallel to the ribs; tried to remove it with the cautery; severe bleeding; elastic ligature tied round base, and fixed outside; the mass sloughed, and was cut away on seventh; granulating surface soon healed, and recovery was complete.

*Removal of a gummatous growth.*—Hochenegg (*Wien. klin. Wschr.*, 1890, 52). Female, twenty-seven; Hochenegg excised the mass, plugged the wound with iodoform gauze, and fixed the liver with a large needle in the abdominal wound, which he closed up round it; recovery without symptoms. He much prefers the extra-peritoneal method where it is possible.

Langenbuch (Assoc. of Berlin Surgeons, 1890, Oct. 13) showed a woman from whom he had removed a lobulated mass from the liver (Schnürleber).

*Movable liver.*—Langenbuch (Assoc. of Berlin Surgeons) showed a young woman in whom he had pushed up a movable liver, and fixed it with a row of silk stitches carried deeply through the right lobe and the rib cartilages. After six weeks' rest the patient was relieved of her sufferings. The cause here was paralysis of the right half of the diaphragm, after diphtheria in childhood; perhaps this is always the cause of wander-liver?

*Cancer.*—Hochenegg (*loc. cit.*) states that a case in which he removed a carcinoma eighteen months ago ("Year-Book," 1891, 239) remains well, and the liver, though the pedicle was treated as above, has retreated beneath the ribs.

*Removal of cancerous left lobe.*—Lucke (*Ctblt. f. Ch.*, 1891, 6). Female, thirty-one, intermittent symptoms two years, worse six to eight months; tumour one month in epigastrium, size of apple, beginning two fingers' breadth below xiphoid; very mobile. Diagnosis, probably tumour of liver, but rest of organ not enlarged. Laparotomy showed the tumour to be the left lobe, containing large cancer nodules, about size of fist altogether, and connected to main mass by a thick pedicle (20 centimètres round), which allowed it to be drawn out of wound; omentum adherent; removed, with two



swollen glands in it. No growths could be felt in rest of abdominal organs, and the pedicle was free. Thermocautery tried, but soon abandoned, as Lücke feared primary or secondary bleeding with it. Abdominal wound closed round pedicle; bleeding from eschar checked by iodoform gauze, over which a rubber tube was tied. On third and sixth, all being well, a tube was more tightly applied, causing one hour's pain; and on ninth, division of pedicle was completed with the cantery. Slow granulation followed; went home on thirty-first, and was not quite healed a month later.

*Gall-bladder and bile-ducts.*—Observations on some additional cases illustrating hepatic surgery. Thornton (*Journals*, March 7, 1891) claimed three new departures in the surgery of the gall-ducts:—(1) Direct incision of the common duct, removal of an impacted stone and complete suture of the opening; in one case an omental graft was applied. (2) Needling and crushing (with sheathed forceps) of a stone in the common duct, leaving the fragments to find their way into the duodenum. In another case he incised the duct, needled the stone into fragments, failed to extract them, and sutured the duct over them, stitched the gall-bladder into the wound and drained it; discharge ceased on sixteenth; perfect recovery. (3) Leaving gall-bladder open with efficient direct drainage, when it is impossible either to bring it into the wound or to suture it. If there was any chance of fouling of the peritoneum, he would put a glass drain into Douglas's pouch also. This would be the treatment after removal of a stone from the duct, and imperfect suture. Thornton had performed six exploratory examinations of the liver, which in one case led to the division of adhesions, and relief. J. W. Taylor had found phosphate of soda give relief in most cases of hepatic colic. In stones impacted in duct he performed cholecystotomy, and injected the bladder twice a day with an emulsion of tauro-cholate of soda; this speedily produced separation, fracture, and evacuation of the impacted stone. Removal of the obstruction was shown by escape of bile from the wound, and the incision then generally healed in a few days. Courvoisier (*Contributions to the Pathology and Surgery of the Bile-channels*, 1890, p. 370) gives a very good account of the present state of knowledge, and criticises the various views from the standpoint of considerable personal experience. He is strongly impressed with the disadvantages of cholecystotomy and drainage at one operation, and the two-stage method has even less to recommend it; he would reserve it for feeble patients with irremediable obstruction, cholecystenterostomy being impossible. Suture of the gall-bladder and dropping it probably gives the best results; it must not be used if the bladder is diseased, or if the obstruction

cannot be overcome. Cholecystectomy hardly gives a higher mortality than cholecystotomy; there is no chance of recurrence, and there is no evidence that removal of the gall-bladder does harm. It should be used in severe recurrent cases, hydrops from closure of duct, with markedly morbid gall-bladders and ruptures and wounds which cannot be sutured. Having had three successful cases of removal of stones from duct by direct incision, he prefers this plan to attempts to crush.

**R. Voigt** ("Surgery of Gall-bladder," *Deut. med. Wschr.*, 1890, 34) reports thirteen of Heusner's cases; all bladders were closed by a double row of stitches, and held well. If doubtful of their doing so, drain. In one case a stone was cut out from orifice of common bile duct, suture impossible; drainage and position so that gall should flow out; recovery. **Küster** (Assoc. of Berlin Surgeons, Oct. 13, 1890) had cut a stone out of ductus choledochus, closed the wound by tier-sutures, and closed the abdomen; recovery. He thinks the tier-suture is trustworthy; but would not close a suppurating bladder.

#### **24. Surgery of the spleen.**

*Resection of spleen.*—**Bardenheuer** (*D. med. Wschr.*, 1890, 36). F., 47; laparotomy for pelvic cyst diagnosed as ovarian. Found to be splenic. Adhesions separated, spleen and stomach drawn from wound; spleen held by assistant while Bardenheuer cut away cyst through splenic tissue. Pressure with iodoform gauze, bleeding slight, most marked near hilum; here Bardenheuer included vessels in buried sutures, elsewhere bleeding checked by thermo-cautery. When returned to abdomen spleen fell into its proper place; recovery.

Bardenheuer recorded also (*D. med. Wschr.*, Sept. 25, 1890) removal of part of spleen adherent to ovarian cyst; good recovery.

**F. Fink** (*Zeitschr. f. Heilk.*, Bd. x., p. 353). M., 14; median laparotomy for cyst of spleen. Lower part of gastro-splenic omentum tied and divided to facilitate withdrawal from abdomen, lower end of spleen containing cyst removed with thermo-cautery; rapid healing.

*Hydatid cyst of spleen*—**Dr. Braine** (*Annales de la Polyclinique de Paris*, Sept., 1890). M., 34; aspiration failed; laparotomy; cyst tapped (2.50 litres sero-pus), could not be drawn out, fixed to edge of wound; daughter cysts cleared out, and as much of wall as possible resected, washed out, and drained. Fistula closed in six months; remains well after five years.

**Ollier** (*Rev. de Chir.*, 1890, 810). M., 27; laparotomy; pus drawn off with hooklets, spleen sutured to wall, trocar left in; recovery.



*Splenectomy*.—N. W. Filippow and M. M. Kusnerow (*Ct. f. Ch.*, 1891, 9) reported a case of Grube's of removal of spleen for malarial hypertrophy in F., 25. Profuse bleeding occurred from a laceration after ligature of the pedicle, and death occurred on the eighth day with unexplained fever. They append statistics of seventy-nine cases with about 40 per cent. of recoveries.

Howard Fussell (*Univ. Med. Mag.*, Sept., 1890) records a case of torsion of a spleen which had dropped into left iliac fossa. F., 53; seized after a full meal with vomiting and purging; a tumour in left groin occupied most of pelvis. Laparotomy after forty-eight hours by C. Penrose; spleen with torsioned pedicle was removed; cavity drained; death next day; 105 cases tabulated, with 57 per cent. of recoveries.

### 25. Surgery of the pancreas.

*Cysts of pancreas*.—O. Riegner (*Berl. kl. Wschr.*, 1890, 42, 145). F., 23; previously healthy, had a fall three years ago, and began to suffer from repeated violent vomiting, collapse, slight fever, and attacks of severe pain. A smooth, round, fluctuating, tender, pulsating swelling formed rather to left of mid-line, distinct from liver, gall-bladder, and spleen. The distended stomach covered lower two-thirds of swelling. Pulsation ceased in knee-elbow position. Fluid drawn off was blood (it varies from chocolate to clear), alkaline, fat-emulsifying and diastatic. The urine contained traces of sugar. A  $2\frac{1}{2}$  inch cut was made in the mid-line, below xiphoid, small omentum torn through, cyst aspirated (1,500 grms.), incised, and sewn to edges of abdominal wound, and cavity stuffed with gauze. Cured in six weeks.

Pitt and Jacobson (*Med. Ch.*, June 8, 1891) reported a similar case. History of injury: Aspiration gave temporary relief. Refilled in a month. Operation in two stages, but cyst had to be opened within thirty-six hours owing to tension from hæmorrhage into cyst, and feeble condition of patient. Recovery.

Gould (*Lancet*, Aug. 8, 1891). First case in tail (rare): Pain so severe that operation was necessary soon after confinement. Gould turned up colon and omentum (but would not repeat this), evacuated cyst with trocar, enlarged wound, and made a counter-opening on to finger below left twelfth rib, and drained here. Good recovery. He recommends this method of drainage in conjunction with the abdominal operation, but is not in favour of primary operation through the loin owing to the difficulty of exploring the tumour from behind. [It must be remembered that the pleura often reaches down to the first lumbar transverse process, especially on the left.] Second case (in head): Cyst wall

slipped away after evacuation, and peritoneum had to be closed over it without suturing cyst, which refilled in a week. Aspirated again, and cyst wall sewed into abdominal wound, and drained. A fistula resulted, and remained open after four years in spite of all treatment. Finally, malignant growth set in round fistula. In another case Gould would not unite cyst to skin, but would drain through peritoneal cavity.

Dr. M. H. Richardson (*Boston Med. and Surg. Journal*, Jan. 29, 1891). M., 50. History of injury : typical symptoms. Large tumour in epigastrium, *moving 4 inches with inspiration*. Median laparotomy below xiphoid ; cyst adherent to stomach, liver, and colon ; aspirated (fluid clear straw-coloured), opening enlarged, glass tube inserted, and cyst sewn into abdominal wound. Rapid healing. Sinus, and some discharge three months later.

Hartmann (*Cong. Fr. Surg., Prog. Méd.*, April 11, 1891). Exploratory laparotomy in F., 53, with typical symptoms and tumour lying to *left* of and a little above umbilicus. Tumour could not be shelled out ; punctured, chocolate-coloured fluid ; fixed to abdominal wall, and drained. After some months death with signs of pyloric obstruction. Cystic epithelioma. Hartmann says that extirpation is always grave on account of adhesions, and that puncture should not be done, as peritonitis has several times resulted. He would drain at one operation, and thinks there is no fear of fistula. (*See* Gould's and Richardson's cases.) Hartmann thinks the prognosis in pancreatic cyst should be very guarded.



# ORTHOPÆDIC SURGERY.

By W. J. WALSHAM, F.R.C.S., Eng.,

Assistant-Surgeon, Lecturer on Anatomy, and Surgeon in Charge of the Orthopædic Department, St. Bartholomew's Hospital.

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## 1. Treatment of lateral curvature of the spine.

Bradford says (*Transactions of the American Orthopædic Association*, Sept., 1890) the results of gymnastics are not all that can be desired in severe cases of lateral curvature, neither is treatment by the prone couch, nor by appliances, or a plaster jacket. In fact, a surgeon whose attention is called to the treatment of this distortion frequently meets with a large number of patients for whom little or nothing can be done, and if he is honest with himself will have often to confess that in many instances treatment has been of little, if of any, benefit, and certainly that the use of any exclusive method, mechanical, gymnastic, or postural, is irrational and unsatisfactory. The individual cases must be examined individually and treated in a variety of ways. In the severer cases all that can be attempted is to prevent an increase of the curve, the absolute cure of the curve being impracticable or impossible. "The treatment in scoliosis," he says, "may be defined as consisting of the correction of flexible curves, the prevention of the establishment of bone changes in these cases, and in osseous curvatures the limitation of the curves, preventing an increase or relieving the symptoms in the severest forms." He divides lateral curvature into three stages. In the first or initial stage, the curve is flexible and entirely disappears when the superincumbent weight is removed either by suspension or recumbency. For this he recommends postural treatment, thorough drill daily, and correct attitudes in motion; proper gymnastics in the muscularly weak cases; recumbency in the feeble cases, with supervision as to chairs, occupation, and attitude. In the second stage or, as he calls it, that of development, in addition to the treatment for the first stage, he advises in the severer cases the method of forcible correction, and retention appliances. In the third stage,

which he calls the stage of arrest, where the curvature which has been formed in childhood is established and is not increasing, he considers no treatment is required, but in the severer cases corsets and self-suspension exercises. He has modified the methods of Lorenz and Beely for producing forcible correction. The patient lies upon a board, attached to which is a firmly-padded roller eighteen inches high. On this the patient rests the left shoulder, if the curve is the ordinary one, whilst pressure is made upon the projecting ribs by means of a padded wooden bar fastened to the board at one end, the other end, the long arm of the lever, serving as a handle for the surgeon exercising pressure. A firm pad under the ribs on the left side will give counter-pressure in that direction.

Scudder (*Trans. American Orth. Assoc.*, 1890) has constructed a chair with hinge and movable back at right angles to a seat slightly inclined from the floor, and long enough for the child to rest comfortably with the legs on it. The back at the level of the shoulders is connected by stiff iron rods to the handle of a dynamometer graduated in kilogrammes. Attached to the back of the chair is an upright and a cross-piece movable up and down, by means of which the height both standing and sitting can be taken. By means of this apparatus he has determined the average strength of the back muscles of growing girls at various ages. By comparing the strength of the muscles in a patient with lateral curvature with the standard strength thus obtained at a given age, he considers we have a scientific means of determining whether the case under consideration will be likely to be benefited by a series of exercises.

*The rotatory element in lateral curvature of the spine.*—Judson (*Medical Record*, Nov. 1, 1890), in an interesting paper in which he further elaborates his now well-known theory of the causation of the rotation in lateral curvature, recommends, in the way of treatment, the production of "lordosis of the dorsal and lumbar regions, on the theory that the patient is thus led to remove the imposed weight, or a part of it, from the bodies of the vertebrae, which deviate widely from the median line, to the articular processes, which, by virtue of rotation, remain comparatively near the median line." This is done by suspension on the curved back-board and by using an air-pillow (10 in. by 18 in.), placed under the back when the patient is supine, so that the shoulders may lie between the air-pillow and the pillows for the head, and the pelvis may hang over the lower edge of the air-pillow. He also makes use of posture, exercises, and recumbency, in the treatment of these cases.



## **2. The treatment of posterior rachitic curvature of the spine.**

Ketch (*Trans. American Orth. Assoc.*, Sept., 1890). In very young children, from one to two years of age, Dr. Ketch never uses any mechanical supports. For this class he has found a constant recumbent position in fresh air and sun-baths, with appropriate dietetic and medical treatment, sufficient. In older children he employs a modification of Taylor's spinal brace, believing that it is better that the child should enjoy the sunlight, fresh air, and exercise in a tight-fitting support than to add to its already imperfect condition by continual confinement in one position.

## **3. The treatment of spasmodic wry-neck.**

(*Spasmodic wry-neck, and other spasmodic movements of the head, face, and neck.* Smith, Elder & Co., 1891).—Noble Smith concurs in the generally-accepted opinion among surgeons that neither drugs, local applications, nor other general methods, are of any permanent use in the treatment of well-established wry-neck, and that electricity has failed to do any good. He further holds that nerve-stretching, although successful in a few cases, cannot be depended on as a certain remedy; but that section and ablation of a piece of the spinal accessory nerve is absolutely certain to remove all spasm from the muscles supplied by that nerve, and is very likely to remove spasms set up in other muscles, although other nerves are apparently involved. The most certain and satisfactory plan of operation, he says, is section of the nerve upon the inner side of the sterno-mastoid before it enters the muscle. When other muscles remain spasmodically affected, the spasm may be removed by section of the nerves supplying those muscles. The operations of section of the spinal accessory nerve and of the posterior roots of the cervical nerves are not followed by serious inconvenience to the patient from paralysis of the muscles. Further, there seems to be no risk of the reunion of the nerves and return of the spasms after operation.

Petit (*Revue d'Orthopédie*, July, 1891). From an analysis of twenty-four cases the author concludes that all medicines are useless, and that the operation of dividing the nerve is easy and is productive, in the majority of cases (eighteen out of twenty-four), of the best results. He prefers dividing the nerve in front of the sterno-mastoid. Patients are seldom cured immediately, spasmodic contraction of other muscles than the sterno-mastoid and trapezius—which, of course, are paralysed—remaining for a while. But these secondary movements diminish little by little, till they finally disappear. In a small number of cases they persist. When

this is the case, resection of the facial nerve or of the posterior branches of the cervical nerve may be undertaken. After operation, it is necessary to complete the cure by employing massage of the muscles still in a state of spasm, and to fix the head in a support. This apparatus should be worn for many months, even a year—in short, till the desired results are obtained.

*A new operation for wry-neck.*—Keen (*Annals of Surgery*, Jan., 1891) describes an operation for resection of the posterior divisions of the first three cervical nerves by which the chief posterior rotators of the head, the splenius capitis, rectus capitis posticus major, and the inferior oblique are supplied. He makes a transverse incision, about three inches long, a little below the level of the lobule of the ear, from the middle line of the neck posteriorly. He divides the trapezius and complexus transversely, avoiding the great occipital nerve. He then resects the posterior division of the second cervical, the sub-occipital nerve in the sub-occipital triangle, and afterwards the posterior division of the third cervical nerve. The only difficulty he experienced was the depth of the wound, and consequently the want of light. The hæmorrhage was free, though easy to control.

Noble Smith (*opus cit.*) has also divided these nerves for spasmodic wry-neck. He, however, makes his incision vertical instead of transverse, beginning at the occiput and extending for three inches parallel to and about an inch to the right of the spinous processes. He did not succeed in excising the sub-occipital nerve, since some large veins interfered with further operation. The spasms of the muscles, for which the operation was undertaken, were practically put an end to.

#### **4. The treatment of congenital wry-neck.**

Tenotomy by open incision appears to find favour with surgeons, especially on the Continent, and several important communications have been contributed on the subject. Amongst these may be mentioned *Tenotomy by open incision for muscular torticollis* by Phocas (*Revue d'Orthopédie*, Sept., 1891), who relates three cases of open incision of the tendon of the sterno-mastoid for wry-neck, and advocates a small incision in a vertical direction along the contracted tendon. After exposing the tendon, he passed a grooved director beneath it and divided it. Subsequently, he discovered a deeper tendinous band and many smaller tendinous bands, which he also divided on the director. He does not think that these could have been successfully dealt with by the subcutaneous method. He claims for the open incision that it is attended with no risk, and that it is more efficacious than the subcutaneous section; but he admits that the cicatrix, especially



in children, may become enlarged and visible, even though union without suppuration is obtained. Another case of *muscular torticollis of twenty years' standing*, in which tenotomy by the open incision was practised, is reported by Schwartz (*Revue d'Orthopédie*, July, 1891). The patient—a girl of twenty-two—was afflicted with wry-neck of the most severe kind. The sterno-mastoid was reduced to apparently little more than fibrous tissue. A vertical incision was made, three centimètres in length, along the course of the sterno-mastoid muscle, and the muscle then divided by several small cuts. The section had to be carried deeply before the head could be completely rectified. An instrument was worn, and exercise and massage practised. Rectification was not complete on account of the cervical scoliosis.

#### **5. The treatment of congenital contractions of the fingers.**

Adams (*Medical Society Transactions*, vol. xiv., 1891). In the first stage, in which the little finger only is affected, Mr. Adams says the treatment is essentially preventive, the object being to prevent the dropped little finger falling into a stage of confirmed contraction. The child should wear a light retentive metal splint for a lengthened period; at first day and night, and at night for two or three years or even longer. The finger and hand should at the same time be rubbed and exercised three times daily. In the second stage, in which there is confirmed contraction and tense bands can be felt beneath the integument, these bands should be divided subcutaneously, and the finger subsequently straightened by a cogwheel extension apparatus. Mr. Adams prefers for this purpose the splint he uses for Dupuytren's contraction. In the third stage, in which in addition to the little finger the middle and ring fingers are always involved, occasionally also the index finger, the operative and mechanical treatment are also essentially the same as for the second stage, all the tense bands being divided subcutaneously. The extension instrument should be worn night and day for a period of from three to six months, and a metal retentive splint afterwards at night for some months.

*The treatment of contractions of the fingers and toes.*—Anderson (*Lancet*, July, 1891) has arrived at the conclusion that there are two forms of disease comprised under the name contraction of the palmar fascia—the one traumatic in origin, depending upon common inflammatory changes in the integumental and fascial structures, and occurring at all ages; the other unassociated with obvious traumatism, tending to multiplicity of lesion, and almost confined to middle and advanced life. The latter condition—true Dupuytren's contraction—is not, strictly

speaking, a contraction of the palmar fascia, but consists of a chronic inflammatory hyperplasia commencing in the subcutaneous connective tissue, and involving secondarily the palmar fascia and deep fibres of the corium. For the traumatic cases, Mr. Anderson considers that the subcutaneous plan is the best, and that the risks of a relapse are probably less than in the open method. The latter, he thinks, is, perhaps, most applicable to the slighter cases, in which the whole of the disease can be removed; but it may also be employed where the subcutaneous plan has failed. Where the skin is so far involved that full and satisfactory extension is impossible, a plastic operation after transverse division through the integument and fibrous cord at the root of the finger is advised; the wide gap left on extending the joint being filled by the transplantation of a flap from the side of the digit. In contraction of the finger, due to developmental irregularities in the bony and ligamentous elements of the articulation—*hammer finger*—Mr. Anderson advises in milder cases the persevering use of passive motion. Where the contraction has reached an advanced degree, he divides the lateral ligaments, subsequently keeping the finger straight by means of an extension splint; while the tendons are relaxed by flexion of the wrist. If this fails, after massage and passive movement he lengthens the tendon. Section of tendons within the theca is useless, because the divided ends do not unite. As a last resource, amputation may be demanded to remove a useless or inconvenient member. To lengthen the tendon, the tendon is exposed, transfixed by a fine tenotomy knife, and split longitudinally for a distance of two inches. At each end of the fissure so made, the tendon is divided in such a manner as to leave one-half of the split portion attached to the proximal, the other to the distal end of the tendon. The small overlapping portions of the tendon which then remain are sewn together with catgut suture.

In trigger finger, the *doigt à ressort* of French authors, a defect in the finger consisting of an impediment which obstructs the movements of flexion or of extension or of both, followed, if the motive force be continued, by a sudden cessation of the resistance, and a brusque spring-like action that often bears a remarkable resemblance to that which accompanies the opening and closure of a blade of a penknife, the best effects he thinks will be obtained by the persevering use of passive movement combined with massage.

In *hammer toe*, Mr. Anderson considers resection of the joint the most eligible measure, the subcutaneous division of the lateral ligaments having the disadvantage of requiring a long after-treatment. In this operation an incision is made on the



lateral aspect of the affected articulation following the axis of the bones, exposing the lateral ligament whilst leaving intact the vascular and nervous trunks. The ligament is divided, the head of the proximal phalanx made to protrude, and removed by bone-nippers. The toe is subsequently extended for a few weeks upon a dorsal splint of steel. For *hallux flexus* he advises a regulated series of passive movements by the use of the patient's hands, aiding the process by massage of the lower and inner side of the foot, and, as the tenderness passes away, the practice of walking on tiptoe until the normal degree of extension is restored. In severe cases he extends the joint forcibly under an anæsthetic, and fixes it in a plaster splint. In *hallux valgus* the use of a well-made boot and stocking made with a separate pocket for the great toe will be sufficient. In more severe examples forcible rectification under an anæsthetic aided, if necessary, by subcutaneous section of the external lateral ligament and fixation in plaster has been found successful. Resection of the head of the metatarsal bone Mr. Anderson considers a very severe operation in its remote, if not in its immediate consequences, and can rarely be justifiable. The Reporter has performed this operation many times, and has seen it done frequently by some of his colleagues at St. Bartholomew's; he has found the wound invariably heal by first intention, and the results eminently satisfactory. For *hallux varus* Mr. Anderson divides subcutaneously the internal lateral ligament.

#### 6. The treatment of divided tendons.

Poncet (*Revue d'Orthopédie*, July, 1891). M. Poncet's attention was directed to this method by a case that came under his observation. The patient had divided his tendo Achillis accidentally. The wound had healed and the ends of the tendon were found widely separated, and could not be brought into apposition even on extreme extension of the foot. M. Poncet made a U-shaped incision over the back of the heel, with the extremities of the U downwards, separated the periosteum from the bone, and detached the posterior part of the os calcis, so that it could be slid upwards on the rest of the bone. He then made a vertical incision over the tendo Achillis, vivified the ends, which now came easily together and united them by suture. The detached portion of the os calcis was next fixed in its new position by ivory pegs. The wounds were dressed antiseptically, and the foot placed in plaster of Paris. The result was excellent. M. Poncet considers that this method of detaching a portion of bone into which the tendon is inserted in cases where the ends of the tendon cannot be brought into apposition is applicable in other situations. For

fracture of the patella where the fragments cannot be approximated he advises the detachment of the tubercle of the tibia, sliding it upwards on the bone, and fixing it with an ivory peg after the fragments of the patella have been thus brought together. For division of the triceps he proposes a like detachment of the olecranon with the insertion of that muscle.

### 7. The treatment of club-foot.

*Hyperextension after tenotomy in club-foot.*—Gibney, Shaffer, Sayre, and Phelps (*New York Academy of Med.*, Sept. 17, 1891). Gibney recommends immediate hyperextension after division of the tendo Achillis in club-foot, since he never feels sure that he has cured the deformity till he has obtained a certain amount of calcaneus. Shaffer thinks that immediate hyperextension is attended with risks of non-union or an elongated tendon. Sayre, to obviate this risk, limits the immediate extension of the foot to a right angle with the leg. When these accidents occur, he believes it is the result of applying the dressing and apparatus too tightly, so that the soft tissues are forced inwards towards the bone between the ends of the divided tendon. Phelps has practised hyperextension in 161 cases without failure of union. He divides the tendon by the open method.

Dane. *Apparatus for correction of talipes equino-varus* (*Boston Med. and Surg. Journal*, March 12, 1891). This is a modification of the snow-shoe. It consists of a shingle long enough to project beyond the toes for two or three inches, strapped to the sole of the foot with a side arm running outwards at right angles to the foot. The heel is held firmly to the shingle by means of a bandage and adhesive plaster straps running up the leg. The long projecting end of the shingle in front furnishes a lever with which to flex the foot. The flexion is obtained by means of tightening a strap, the upper end of which is put through a buckle and fastened to the skin by adhesive plaster. The lower end is fixed to the front of the shingle. The eversion of the foot is obtained by a similar strap extending from the end of the side arm to the middle of the leg. In place of the plaster for fixing the straps to the leg three steel uprights connected by two semi-circular posterior steel bands may be employed.

### 8. The treatment of congenital dislocation of the hip.

*A new method of treating so-called congenital dislocation of the hip.*—Redard (*Revue des Maladies de l'Enfance*, Nov., 1890, and *Revue d'Orthopédie*, Jan., 1891) employs the method advocated by Paci. It consists in flexion of the limb upon the pelvis, abduction of the thigh, rotation, and extension. The treatment



takes about four to six months. Paci reported originally five cases in children of nine, sixteen, and eleven, who were cured or greatly improved. In a double dislocation the treatment failed on one side. He has since reported other cases. Redard has treated eight unilateral cases and three double in this way, in ten with successful results. After reduction he maintains the hips in place by a silicate bandage, then keeps up continuous extension for three months, and afterwards recommends certain walking exercises by the aid of crutches and a stick. Paci believes that in congenital luxation the obstacles to reduction are muscular contraction and shortening, and not changes in the bones. This, however, is not the cause in all cases of congenital dislocations. Our museums contain specimens showing osseous alterations. In these cases it is hardly possible that Paci's method would succeed.

*Operative treatment of old congenital dislocations of the hip.*—Ricard and Nélaton (*Mercredi Médical, Revue d'Orthopédie*, Jan., 1891).—The operation, performed by M. Ricard, consists in making a posterior incision over the dislocated head, resecting the head of the femur and detaching the adherent capsule. After having freed and pushed forward the capsule, he enlarges with the mallet and chisel the deformed cotyloid cavity and replaces the stump of the neck of the femur in it. In reporting on this case M. Nélaton says that he considers it superior to the mere resection of the joint, and that it is applicable to many forms of unreduced dislocation of the hip.

#### **9. The treatment of genu valgum and other deformities of the knee.**

*Genu recurvatum on both sides.*—Owen (*Trans. Medical Society*, vol. xxiv.) The child was  $3\frac{3}{4}$  years old. Its favourite attitude was sitting with the back of each foot resting upon the collar-bone, the knees being hinged with the salient angle backwards like a stork's. The heads of the tibiae were displaced so far forwards upon the trochlear surfaces that the back of the femoral condyles and the inter-condylar notch could be clearly defined in the popliteal space. The patella was present. Flexion of the knee in the proper direction was absolutely impossible, and even when the child was under the influence of chloroform the legs could not be brought into a line with the thighs. Mr. Owen divided the quadriceps extensor on each side by a free transverse incision which fully exposed the trochlear surfaces. The wounds were dressed with sublimate gauze and the limbs kept straight in a box splint. When the report was published the knees could be flexed to a right angle and the child was acquiring some power over

them. She could easily stand on the right leg. Massage and manipulation were still being employed.

Phocas (*Revue d'Orthopédie*, Jan., 1891) also relates a case of the above in an infant. The leg was hyperextended on the thigh at an angle of  $140^{\circ}$ . The limb was placed in extension apparatus for two months and a half, but as it only slightly improved M. Phocas at the end of this time performed manual osteoclasy just above the condyles. The result was so far successful that the leg could be flexed in the normal manner to a right angle, the hyperextension being completely corrected. M. Phocas has collected twenty-three cases including his own. In five the lesion was accompanied by other deformities. Two obstacles present themselves in these cases to reduction, (1) muscular, *i.e.*, contraction of the quadriceps, and (2) bony, *i.e.*, projections of the femoral condyles. The treatment should have two aims—to reduce the deformity and to maintain reduction. Certain cases are easy to reduce but difficult to maintain in the corrected position. Treatment by apparatus has in the great majority of cases been sufficient. In other cases reduction has not been maintained. In these M. Phocas strongly recommends manual osteoclasy in the infant. It can be done without chloroform and is practically without danger.

#### **10. Curved linear osteotomy for the treatment of ankylosis of the knee in children.**

Kummer (*Revue d'Orthopédie*, March, 1890). This operation was described by Helferich at the Congress of German Surgeons, 1890. Kummer has practised it on a child, aged 8, who had received a blow six years before, followed by inflammation and suppuration. The knee was flexed at an angle of  $35^{\circ}$ . There was genu valgum to the extent of  $10^{\circ}$  and rotation to  $5^{\circ}$ . An incision was made transversely from one condyle to another in the line of the joint, the patella separated by the chisel, the fibrous adhesions which existed between the external condyle and the tibia cut through, and the internal condyle, which was ankylosed by bone to the inner tuberosity of the tibia, divided with the saw, by a curved incision corresponding to its articular border. The posterior layer of the capsule was next divided and the limb easily placed in a straight position. The wound was drained, dressed with iodoform gauze, and the limb secured in plaster of Paris. Twenty-three days after the operation the patient was allowed to get up. There was now only one centimètre of difference between the length of the two limbs, and the scoliosis which previously existed had completely disappeared. The interest of this operation lies chiefly in the fact that the epiphyses are not injured, and conse-



quently that the growth of the limb is not interfered with, as is too frequently the case after excision of the joint in children.

**11. The treatment of rickety deformities.**

*Operative treatment of rachitic deformities of the lower limbs.—*

Motta (*Archivio d'Orthopedia Fasc.*, 3 and 4, 1891; *Revue d'Orthopédie*, Sept., 1891) reports 120 cases of osteotomy for rachitic deformities of the lower limbs. Of these forty-eight were done by open incision. The bone was exposed by a long incision and the movements of the osteotome followed by the eye. The wound was then in great part re-united. Amongst the 120 osteotomies four cases suppurated, in two of which sequestra were subsequently removed. In a fifth case gangrene of the limb necessitating amputation supervened. The osteotomy was done on the tibia after the method of Billroth. The knee-joint suppurated, but the patient recovered after the operation. M. Motta does not allow his patients to wear mechanical apparatus after the osteotomy.

# SURGICAL DISEASES OF CHILDREN.

BY EDMUND OWEN, M.B., F.R.C.S.,

*Senior Surgeon to the Hospital for Sick Children, Great Ormond Street, and Surgeon to St. Mary's Hospital, London.*

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**1. Affections congenitales** is the title of a large volume by Professor Lannelongue and Dr. Ménard, of Paris, which has just been published by Asselin et Houzeau. It is the first volume of a series, and deals with the malformations of the head and neck. The order and method of the work are well foreshadowed by a sentence in the preface:—Three distinct stages mark the imperfect evolution of embryonic clefts: they are fissures, fistulæ, and dermoid or mucous cysts.

The second part of the volume deals with defects which are due to imperfect development and absence of blastodermic buds and branchial arches. It gives many and various examples of ill-developed heads—from those which miss the normal standard by a mere trace, to those in which the brain fails to be enclosed within the skull, or is absent altogether. The cyclops with its rudimentary fronto-nasal bud is fully considered from the developmental point of view.

The third part deals with congenital tumours of the head and neck—dermoids, lymphangiomas, and sarcomas.

The book contains five plates and seventy-nine woodcuts which, together with the graphic text, make up a volume of extreme interest to those whose attention has already been attracted to the subject of arrested or erratic development.

## **2. The Koch treatment of tuberculosis.**

In common with his colleagues, Messrs. Morgan and Pitts, the Reviewer gave the method of Professor Koch a fair trial in the surgical wards of the Children's Hospital, the injections being kindly carried out by Dr. Edward Squire. The typical "reactions" were obtained in abundance, but the tubercular joints and glands derived no more improvement from the injections than what might have been anticipated from the rest and general treatment of a hospital.



### 3. Tubercular peritonitis.

Dr. William Osler, in a learned essay (*Johns Hopkins Hosp. Repts.*, vol. ii., No. 2), draws the following conclusion:—First, that tubercular peritonitis is often a latent affection, which may run its course without producing special symptoms; second, that as in other local tubercular processes, there is in this a natural tendency to healing, which takes place more often than has hitherto been supposed; third, that statistical evidence is showing laparotomy to be in many cases a palliative, and in a certain number a curative, measure.

### 4. Laparotomy in tubercular peritonitis.

A review of the work of Dr. A. Pic, of Lyons (*Jour. de Méd.*, Feb. 10, 1891), shows that not more than a third of the cases of tubercular peritonitis in children get well spontaneously. "Laparotomy usually gives excellent results in the encysted form of the disease; good results in the diffuse form; fair results in the purulent form, and negative results in the dry ulcerated form."

### 5. Acute peritonitis.

Dr. G. F. Lydston, Chicago (*Archives of Pediatrics*, Aug., 1890). In a valuable paper Dr. Lydston expresses his disbelief in the existence of acute *idiopathic* peritonitis in children. He is of opinion that nearly all these cases are of traumatic origin, though the history of the injury is not always obtainable. The abdominal viscera in children are proportionably large, whilst their attachments are slender, and their protection is imperfect. "Acute peritonitis in children, while apparently idiopathic, is often secondary to perityphlitic inflammation, which runs a rapid course and extends to the general peritoneum without the intervention of appreciable local changes. The profound prostration of peritonitis is in a great measure incidental to tension of the peritoneum, and to mechanical interference with the heart's action. Surgical interference is indicated in all severe cases of general peritonitis and in cases of localised suppurative inflammation, or in cases of perityphlitic origin, whether due to foreign bodies or not. There is every indication present for operation, and no logical objection to it. The operation is almost invariably palliative, if not curative. Operation in no sense impairs the chances of recovery. *Per contra*, it enhances them to a great degree. No case should be allowed to die without operation, unless already *in articulo mortis*. It is not necessary to make a large incision, excepting in cases in which perityphlitic abscess is known to exist, which is rarely the case in children. If perityphlitic abscess exist, and is recognised before operation, the incision should be made at the most favourable point, which, in the majority of cases, is the

typical line for ligation of the common iliac, as pointed out by Murphy and Lee. In by far the majority of cases in children a simple exploratory incision, with flushing of the abdominal cavity, is sufficient. Speaking for myself, with a keen realisation of the hopelessness of the majority of cases when medically treated, and, I believe, a proper appreciation of the origin of the disease in the majority of cases, I feel warranted in the assertion that peritonitis should nearly always—I was going to say invariably—be relegated to the domain of surgery. The formation of lymph, plastic material, and protective adhesions does not occur in the child because of the rapid extension of the inflammation. A child dies unoperated on, and the case is recorded as another sad illustration of the fatality of idiopathic peritonitis in children. Authorities are united in the opinion that pus is rapidly and almost invariably formed in the peritoneal cavity in children. As already stated, a number of cases of recovery have occurred in which the pus escaped spontaneously. Under such circumstances the chances of life of the patient are entirely dependent upon the caprice of nature. If the pus escapes early enough, the patient may recover. If nature is unkind, death results."

Dr. Lydston then quotes Drs. Lee and Murphy as follows:—"Are we doing our duty to our patients by allowing them to take such chances? Why should pus in this locality be allowed unaided to find its favourable or unfavourable exit in contradistinction to the well-established rule to properly aid its escape in all other parts of the body where accessible? Who has not seen a similar case to this?—The patient is taken suddenly ill, complains of pain in the abdomen, has vomiting, a rapid, feeble pulse, and a pinched, anxious expression of countenance. Examination reveals the abdomen to be uniformly distended and sensitive; in short, with all the symptoms of acute peritonitis, usually terminating fatally on the third or fourth day. The surgical treatment of peritonitis is the most important consideration in connection with this disease. The trite aphorism that 'history repeats itself' is well illustrated in the case of peritonitis. Erasistratus and Soranus, ages ago, several times cut into the peritoneal cavity, in the inguinal region, to evacuate pus accumulated in the abdomen. From this time, however, until 1735, a period of surgical horror of the abdominal cavity existed, surgeons being afraid to touch the peritoneum. In 1735 Petit ( *fils* ) advocated operations for peritonitis. In 1737 he operated upon cases of traumatic peritonitis with favourable results. He was followed, in 1748, by Garengéot. Chomel advised operation to permit the escape of effusion after the subsidence of acute symptoms. In 1846 Guérin advised



copious irrigation of the peritoneal cavity with warm water in generalised puerperal peritonitis, suggesting the removal of effused fluid by aspiration and the injection of warm water until the liquid returned clear."

#### **6. Radical treatment of inguinal hernia in girls.**

Mr. Herbert Page (*Med. Press and Circ.*, xiii., May, 1891) reports the case of a healthy girl of 11 years, who had been troubled with double inguinal herniæ from her infancy. The protrusions were increasing. "The wearing of a truss being clearly inevitable for life, the parents fell in at once with the advice that operation should be resorted to. An incision an inch and a half long over each protrusion enabled the peritoneal sacs to be found without difficulty. I did not separate them from the contiguous round ligaments, but with these *in situ* ligatured them with silk as high up as possible and cut them off. Neither sac at the time of operation contained either bowel or omentum. Both wounds, which had been done up dry and without drainage tubes, were found quite healed when the dressings were changed at the end of a week. She was kept in bed for one week more and the dressings were then finally removed." The cure was perfect.

A second case was that of M., æt. 7. From time to time from her birth onwards her mother had noticed a swelling in the left inguinal region. A small incision exposed the parts; the sac was easily found, ligatured with silk as high up as possible and cut off. The round ligament was left untouched. A dry dressing without drainage tube was applied, and, as in the first case, changed in a week. All was then soundly healed. She left the hospital with complete consolidation and no trace of impulse.

Mr. Page is of opinion that, as a rule, it is unnecessary to resort to any complicated device for involuting tissues or suturing the pillars of the ring. The great secret is to tie the neck of the sac as high up as it is possible, to apply a ligature round it, and simply remove the sac. The peritoneal folds unite firmly together, and there is no longer any canal down which bowel or omentum can be enticed to escape from the abdominal cavity. Primary healing is essential for the success of this method, the chances of which are much jeopardised by the use of a septic ligature. Mr. Page says that he has never had cause to regret the use of a recently-prepared silk ligature, but that no reliance can be placed on catgut however trustworthy it may seem. When the ring is unusually wide, and where more than one finger can easily be admitted, it is a wise practice to suture the stump of the amputated sac to the pillars by passing the ends of the ligature through the pillars and there fixing it. The sac is done away with as in the simpler plan,

but there is provided an additional safeguard in a firm wall of tissue which blocks up the opening.

#### **7. Cases suitable for radical treatment.**

Dr. Henry O'Neill (*Brit. Med. Journal*, Feb. 7, 1891) gives a practical and useful classification of those children who are suitable cases for the operation:—

1. The children of poor people who have not the means of buying trusses, and who have not the time to look properly after the daily application of the trusses when they are able to buy them, for unless a truss is properly fitted after the hernia has been reduced it is worse than useless; it is dangerous, because the pad of the truss may bruise the intestine and cause peritonitis.

2. In children where the hernia is so large that an ordinary truss is not sufficient to keep it reduced while the child is running about playing.

3. In most cases where a truss has been worn for at least twelve months without any improvement, but where the hernia is increasing in size.

4. In persons who are likely to become labourers, or artisans who may have heavy work to do.

#### **8. Paraplegia in Pott's disease.**

Dr. Brackett (*Cong. Amer. Orthop. Surgs.*, 1891) said that relief from paraplegia may be confidently expected from continuous extension and fixation, even in cases of eighteen months' standing. This should be continued for some time after recovery. Dr. Young reported two cases of complete recovery, in which there had been absence of sensation, a feature always of grave import. Dr. Shaffer referred to a case in which the autopsy showed that a portion of the eighth dorsal vertebra had nearly cut through the cord, leaving but a slender thread. Dr. Hoffa said that in these cases the spine should be put absolutely at rest. He had collected thirteen operations within the vertebral canal. Two died at once, two recovered, and would perhaps have done so any way. In the others there were immediate good results, but relapses soon occurred. The operation has no great future; it should be limited to those cases in which the processes alone are affected.

#### **9. Preputial reflex disturbances simulating hip-disease.**

Dr. Robt. T. Morris (*Medical Mirror*, St. Louis) reports the case of a boy  $2\frac{1}{2}$  years of age, who was noticed to walk stiffly with his right leg, and to avoid stepping upon it. Gradually he returned to creeping, and for more than a month did not attempt to walk. In arising to an erect attitude he assisted himself by means of his hands and the rounds of a chair or other convenient object at



hand. The boy had not received any injury, so far as his parents knew, and there was no family history of tuberculosis. "The positive signs were sufficient for me to feel safe in making a diagnosis of incipient hip-joint disease, but having in mind the cases reported by Sayre and others, in which preputial reflexes had led surgeons astray, I advised circumcision in order to eliminate a possible source of error. The prepuce was long and very firmly adherent to the glans penis, and a collection of hard smegma was removed from behind the corona." After the operation the boy promptly lost all his articular troubles.

Those who are conversant with Sayre's teaching are well aware of the importance which he attaches to the association between preputial reflexes and obscure joint affections. The report of this case may also be made the occasion of referring to Mr. Barwell's remark that something more than a casual connection exists between phimosis and actual disease of the hip-joint in children.

#### **10. Phimosis causing hydro-nephrosis.**

Dr. John Playfair showed, at a meeting of the Edinburgh Medico-Chirurg. Society on January 21, 1891, the kidney, ureter, and bladder of an infant of six months, who had never been healthy, and had exhibited swellings on either side of its abdomen since it was a month old. At first it was not thought that these swellings contained fluid, but the aspirator proved that they did, and hydro-nephrosis was diagnosed; the urine was normal. *Post mortem*, the right kidney and ureter were found distended, the left kidney was cystic, and its ureter was dilated. The bladder was contracted, and its walls were thickened. The prepuce was adherent to the glans penis, but the meatus easily admitted a No. 2 catheter. Dr. Playfair thought the tight prepuce might account for the condition of the organs.

Though from Dr. Playfair's account I should be somewhat inclined to think that the hydro-nephrosis was the result of congenital malformation in the kidneys and ureters, it is, on the other hand, very possible that the tight prepuce did determine it. The report of the case supplies the opportunity of once more calling attention to the well-established fact that frequent micturition may suffice to produce serious renal disease. Every time that the muscular wall of the bladder contracts, the escape of fluid from the ureter is checked. Frequent checking of the flow causes distension of the ureter, and intra-renal tension. The prejudicial effect continuing, the renal tissue atrophies and hydro-nephrosis advances. It is a matter of everyday observation that a tight prepuce causes frequent micturition, and, in my experience, the surest way to cure the habit is to circumcise. Repeated dilatation

of the preputial meatus is as vexatious as it is untrustworthy. Circumcision is in all these and similar cases the only business-like procedure, and to call the operation "barbarous" suggests a want of appreciation of the meaning of the adjective, and of the physiological and surgical value of the procedure.

### **11. Two cases of inguinal hernia in infants cured by regulation of diet alone.**

Dr. John Thomson, F.R.C.P., Edin. (*Edin. Med. Journal*, June, 1891), reports the case of a male infant of eleven weeks, to whom the mother gave the breast "constantly, night and day." She also fed him with "meat biscuit" twice daily. He was always crying—and no wonder. "The mother was told to stop the 'meat biscuit,' to supplement her breast milk with diluted cows' milk, and to give the breast and bottle at regular intervals." The child had phimosis, but he was not circumcised until the hernia had ceased to descend, which, under careful dieting, happened in about three weeks.

The second case was a boy of four months—also with phimosis. "Cries day and night continually when not sucking the breast; gruel given regularly; no pain in micturition; constipation." *Treatment*.—"Stop gruel, and give milk and barley-water at regular intervals. Application of truss and circumcision deferred on account of weakness." In less than a month the hernia had disappeared.

Dr. Thomson writes that in these two cases the usual surgical treatment by trusses and circumcision was deferred until the patients should recover from the wretchedly weak condition in which they were, and so become able to bear it. In both children, however, these surgical proceedings were found unnecessary (as far as the hernia was concerned), owing to the rapid disappearance of the condition which followed recovery from dyspepsia, and consequent cessation of crying. They are interesting as enforcing the importance of not neglecting the regulation of the diet, as a part of the treatment in ordinary cases of hernia in babies.

### **12. A tuberculous sequestrum removed from the neck of the femur without injury to the joint.**

At the Clinical Society, May 8, 1891, Mr. Charters Symonds read notes of two cases in which he had removed such a sequestrum. Both patients were children, one aged 3 and the other 5. In both there was a large chronic abscess on the front and outer aspect of the thigh, without any joint-pain. Both children could run about without pain and with only a very slight limp. The movements of the joints in each case were only slightly impaired, and not more than could be attributed to the mechanical presence



of the abscess. In both a minute sinus was found leading through the front of the neck into a cavity in the neck. The channel was enlarged by gouging away a little bone from the outer side and the sequestrum removed. In both the capsule was seen lifted up by the abscess; in the first it was accidentally opened by a slip of the knife, in the second it was intentionally pricked, and in both cases a few drops of clear fluid escaped. Both sequestra involved the epiphysial aspect of the neck, and in the first case the piece of bone was of considerable size. In the first case, operated on in 1887, the wound was stuffed and drained, and the child was not well for more than a year. In the second, the large abscess after being scraped out was sewn up, and this was followed by primary union. Both children were shown. The elder, a boy aged 7, had a perfectly useful joint, possessing all the normal movements, and, moreover, there was no shortening and no irregular growth. The other, the first operated on, had a limb of the full length, but the joint was fixed. Mr. Symonds attributed the superiority of the result in the second case to the method of operating employed, and thought the ankylosis in the first case due either to chronic synovitis or to the fixation caused by the splint.

It was recently remarked by a gentleman, who, though not a member of the medical profession, knows a great deal of what is going on in it, that the surgeon of to-day does not delay his operative interference until he is *compelled* to act, but all he wants is an *excuse* for operating. It is not for me to traverse his statement. Indeed, I think that there is much truth in it. And, as I look back through twenty years or more, I am struck with the vastness of the advantage which the public have gained from this spirit of surgical speculation and operative enterprise. The old practitioners were content to allow chronic abscesses to "ripen" and point, and to discharge themselves spontaneously, for fear lest, if they incised them, the case went wrong. The surgeon of to-day travels deeply in search of pus, and by prompt interference with scalpel and director is able to anticipate and obviate its production. In no department of surgery is this gain appreciated more than in the case of inflammation of bones and epiphyses. In the old days, the surgeon would have been content either to leave these abscesses alone, or merely to incise them. Thus, chronic suppuration lurking about the diaphyses of the thigh-bones would, in all probability, have destroyed the joints. The modern surgeon—of whom Mr. Symonds is so excellent an example—not only opens up and cleans out the suppurating cavity, but seeks for a central sequestrum and dislodges it from the interior of the upper end of the femoral diaphysis. Probably in each case the disease was of septic origin,

and began at the diaphysial side of the junction cartilage—for the neck of the femur, let it be remembered, is ossified from the diaphysis, which, strange to say, forms the articular part of the bone.

These two reports reflect the greatest credit upon the operator, and might well be taken to illustrate the truth of the somewhat epigrammatic statement, that the modern surgeon does not wait for compulsion to operate, but seeks rather the excuse.

Mr. W. H. Battle (*Med. Press and Circ.*, April 1, 1891) records a somewhat similar case. A child had a fluctuating tumour, about the size of an egg, in front of the left hip-joint, whilst behind, the whole of the left buttock appeared to fluctuate; the fluid felt deeply seated. Fair movement of the hip-joint of that side did not seem to cause great pain. The child was put under chloroform, and an anterior incision, about two inches in length, was made over the left hip-joint, the capsule, which was much thickened, was then opened, and some pus at once escaped. A probe passed into an opening in the neck of the femur just below the head, where there was a focus of disease. The diseased part in the neck of the bone was then scraped out through this opening with a sharp spoon, a largish cavity being made. The tissue removed consisted of granulation growth and softened bone. The diseased patch was located in the neck below the line of the epiphysis. The wound was then thoroughly irrigated and swabbed out with chloride of zinc (40 grains to the ounce). Next, an incision about three inches long was made over the swelling in the left buttock, and a large cavity was opened which contained much pus. This was also well irrigated and swabbed out. Both wounds were left open, and drainage tubes were inserted; a sublimate dressing was applied, a long side splint put on, and the child sent back to bed. Two months later the wound was healed and the case gave excellent promise of recovery with a movable joint.

### 13. Cranial surgery in childhood.

There are two classes of children—hitherto considered as hopeless—for whom relief is now being sought by operation. The first class comprises those whose brains are distended by cerebro-spinal fluid. The second consists of those whose brains have had their development checked by the premature ossification and enclosure of the skull. For the *hydrocephalic children* not a mere tapping but a permanent drainage of the ventricles is being resorted to. The *microcephalics* have the capacity of the skull increased by incision and loosening of the bony wall, this latter operation being called *craniectomy*.

Simple tapping of the distended ventricle is no new operation.



Paracentesis was practised long ago in many cases, but without success. Indeed, the permanent and continuous drainage of the ventricle is, itself, not an absolutely new procedure. Dr. Lowson, of Hull, practised it in 1885 in the hopeless case of a boy with hydrocephalus, aged 7 years. He was paralysed, blind, in constant pain, had occasional epilepsies, but he had unimpaired intellect. The skull was drilled, the fluid aspirated, and a constant drain established, and rapid improvement took place, with some movements of the limbs and some vision. In his sleep he pulled out the cannula on two occasions, and it could not be found on the last. He died comatose on the eighth day. At the *post mortem* examination the cannula was found in the ventricle. The ventricles were enormously distended, and their walls were shreddy from hydrocephalic softening. The aqueduct of Sylvius was large enough to admit the little finger. There had been no hæmorrhage and no signs of inflammation.

#### 14. Drainage of the ventricles in hydrocephalus.

A. Broca (*Revue de Chirurg.*, Jan. 10, 1891). Drainage of the cerebral ventricles with the view of warding off cerebral compression due to intra-ventricular hydrocephalus is, says Dr. Broca, and rightly so, a rational procedure. Without doubt, most of the children so operated on have succumbed; but according to Dr. Keen, of Philadelphia, the probable explanation of the failure has been the too rapid escape of the fluid. Broca advises Keen's method, of trephining about  $1\frac{1}{4}$  inch above and behind the external auditory meatus, and thrusting in a trocar in the direction of the opposite external meatus, but a little above it. Then, with a continuous, aseptic drainage, there is no reason, provided the skull-wall is still soft, why a steady improvement should not ensue. In a reported case, on removing the disc of bone the dura mater bulged, and on incising it the brain bulged into the wound also. But there was no pulsation. On drawing off fluid the brain receded, and, what is more, the intra-ventricular pressure being diminished, the brain began to pulsate. This fact, as noticed by the operator, is both interesting and suggestive. A small indiarubber tube was placed in the ventricle, and cut off flush with the scalp. The infant, 3 years, had convulsive movements of the limbs, and then left hemiplegia with contracture. Altogether the case was highly unpromising. The contracture disappeared, but when the child was taken out of hospital there was not, apparently, any other marked sign of improvement.

Dr. Thiriar, of Brussels, reports another somewhat similar case, but the operation proved fatal. *Post mortem*, the capacity of the intra-cerebral cavity was found to be two litres.

Dr. Broca further quotes Keen's cases and also Mayo Robson's, remarking that in the seven cases two had ended in "cure," and five in death—"that is a mortality of 71 per cent. which, for a new operation, undertaken in extremely grave conditions, ought not to discourage."

Mr. Mayo Robson (*Brit. Med. Journal*, Dec. 6, 1890) reported a successful case of trephining and tapping the ventricles which he believed to be "one of the earliest, if not the first, in which the operation has been performed." A child of 10 came under Mr. Robson's care in January, 1889, complaining of hemiparesis; temperature, 103.6° F. There was aural discharge, but no optic neuritis. A diagnosis of basal meningitis was made. A week later the child was restless and "not completely unconscious." On Feb. 7 the skull was opened (for a possible cerebral abscess) with a trephine 1½ inch in diameter, over the motor centre for the arm. Six drachms of clear fluid were withdrawn from the lateral ventricle. "On the third day the patient could answer simple questions. Improvement continued, and within a month all paralytic symptoms had disappeared." When seen six months after the operation the child was perfectly well.

Dr. Chaffey (*Brit. Med. Journal*, Jan. 3, 1891) employed continuous drainage of the ventricles in the case of an infant, 14 months, with acute hydrocephalus and a bulging anterior fontanelle. *Post mortem* examination showed that the cause of the distension was blockage of the iter by a tuberculous deposit.

### 15. Craniectomy.

M. Lannelongue (*Gaz. des Hôpitaux*, March 31, 1891) read a paper at the French Surgical Congress on craniectomy. He reported the results of twenty-five operations, giving the case of one infant whose fontanelles were ossified at birth. In microcephalics generally the skull was prematurely ossified, so that the brain had no chance of growing. The mental defect resulting from this precocity varied from simple backwardness to idiocy. In some cases the skull (according to M. Lannelongue) bore the permanent marks of pressure between the uterine wall and the foetal shoulder. (What a vista must the recognition of this form of idiocy open to the cerebral orthopedist!) M. Lannelongue describes two ways of operating—the linear and the flap method. He does not deem it necessary to take away any periosteum. "Results.—In twenty-five operations M. Lannelongue reckons twenty-four 'operative recoveries,' and one death from septicæmia." But it appears that two of the children died of "croup" in less than two months after the operation. A very large



number of those operated on were improved, either as regards intellect or power of walking.

Dr. Anger also reported (*loc. cit.*) the case of an idiot girl, 8 years, upon whom he practised craniectomy. On her return home everybody found her greatly improved. She now goes to school and understands what she is taught.

M. G. Maunoury (*Gaz. des Hôpitaux*, April 4, 1891) has operated on two microcephalic children. One showed improvement for some time, but ultimately again became as bad as ever. The other died on the day after the operation.

M. Heurtaux reported to the Congress one case of craniectomy; the infant did not recover.

Mr. Victor Horsley (*Med. Press and Circ.*, July 22, 1891) has twice performed craniectomy—the only cases in which the procedure had been carried out in this country. On the other hand, eight cases have been recorded in America. Of these, two were fatal shortly after operation, and one was reported so soon after the operation that the presence or absence of improvement could not be determined. The remaining five cases, however, like the two recorded by Lannelongue, have definitely improved. Mr. Horsley remarked that if mental improvement took place after the operation, it happened quickly; he said it was better to operate only on one side, as a subsequent operation could always be performed on the opposite side were it necessary.

#### 16. Chloroform in tracheotomy.

Dr. Grefier (*Revue de Chirurg.*, 1890, p. 965). In a lengthy article, the surgeon in charge of the Children's Wards at the Hôtel Dieu, Orléans, complains that though the administration of chloroform for tracheotomy is the rule in England and America, it is the exception in France. His custom is now to give chloroform in all cases; to use the smallest amount possible, and to make the first incision as soon as the child ceases to stir when pinched. But if then the child moves, he places an antiseptic sponge over the wound, and has the anæsthetic continued. He concludes that chloroform is no more dangerous in this than in other operations, provided it is given with care, and that the operation is commenced at the earliest possible moment of the anæsthesia. He rightly considers that it should be withheld in those cases in which, as the result of the diphtheritic prostration or of the dyspnœa, anæsthesia has already been produced.

Mr. Pugin Thornton (*Lancet*, Jan. 24, 1891) writes:—"With regard to giving an anæsthetic for the operation of tracheotomy, I consider it nothing less than sinful for a surgeon to permit it." He continues:—"A surgeon, even if alone, can safely manage

tracheotomy on a child if it is wrapped up in a sheet." Yes, of course, he can. But I nevertheless hold the opinion almost as strongly, perhaps, as Mr. Thornton does the opposite, that chloroform ought always to be administered, except in the case of those children whose apprehension and sensibility have already been dulled by carbonic acid poisoning.

Coming from so able an exponent of laryngeal surgery as Mr. Pugin Thornton, I fear that the advice to withhold chloroform from diphtheritic children is sure to attract attention. I trust, however, that, for the sake of the little sufferers, it will not be accepted. My own experience of tracheotomy in children is not inconsiderable, and, so far as I remember, I have never operated without chloroform. I have never seen any harm whatever caused by the anæsthetic, and, putting all sentiment aside—so far as I am able—I deem the advice to refuse its administration in these cases, to say the least, unkind.

#### **17. Obstetric paralysis of infants.**

Dr. Jules Comby (*Bull. de la Société Méd.*, Jan. 29, 1891). The violence inseparable from the expulsion or extraction of the foetus is apt to cause paralysis. The facial nerve is not infrequently implicated, but the variety of lesion referred to is that which is apt to follow forcible elevation of the arm, as after version or breech-presentation. It is a variety of Erb's paralysis, and is probably due to injury to the fifth and sixth cervical nerves, which enter largely into the formation of the outer and posterior cords of the brachial plexus. The arm and forearm hang straight and useless, with the hands slightly pronated and the fingers bent. The treatment insisted on by Duchenne is the early use of localised faradisation.

#### **18. Conical stumps in childhood.**

Edmund Owen, F.R.C.S. (*Lancet*, Oct. 3, 1891). A boy of 5 years put his right hand and forearm into a sausage-machine in March, 1884, with the result that amputation had to be performed just above the elbow. The ample flaps promptly united, and the boy went home. In October, 1889, he was readmitted to St. Mary's Hospital because the stump had become conical and painful, and the bone was close against the scar. Chloroform being administered, the house surgeon, Mr. Hanson, removed about one inch and a half of the humerus from beneath the periosteum. The wound healed rapidly, and the boy returned home within a week. In a little more than a year he was again admitted because the bone had grown too long for the stump. This time the house surgeon, Mr. Winter, removed two inches of the end of the humerus.



Unless the fact be generally recognised that a conical stump is very apt to follow certain amputations in childhood, parents may be dissatisfied and the surgeon disappointed when a sawn humerus or tibia is found pressing against a tender and threadbare scar. Still the occurrence is almost as physiological as that of the growing schoolboy's sleeves and trousers "getting too short." When amputation is done in certain diaphyses the bone keeps on growing from its upper epiphysis, regardless of the fact that the skin and subjacent tissues have no provision for keeping pace with it.

In the *New York Medical Record* for last year Dr. Charles A. Powers published an extremely interesting paper on this important subject, instancing the case of a boy of 6 years, from whose humeral stump four inches and a half had, in various operations, been thus removed. In the *Surgical Dictionary*, in an article on Affections of Stumps, Mr. Bernard Pitts calls attention to the growing humerus sometimes causing a conical stump; whilst Mr. Bryant, in his work on Surgery, offers a useful caution in the matter of the tibia. He says, indeed, "In the amputations of childhood this condition must be expected." The more important epiphysis in the growth of the humerus and of the tibia is the upper one. In the case of the bones of the thigh and forearm the lower epiphyses are the more important; and as in amputation through these bones those epiphyses are removed, it is, as might have been anticipated, quite exceptional that the stump of a child's thigh or forearm ever becomes conical.

# DISEASES OF THE GENITO-URINARY SYSTEM.

BY REGINALD HARRISON, F.R.C.S.,

*Surgeon to St. Peter's Hospital, London.*

## **1. The operative treatment of the enlarged prostate.**

During the past year the operative treatment of the enlarged prostate by the supra-pubic and perineal methods has occupied an increasing amount of attention, and some valuable additions have been made to our experience, as well as in some of the details connected with these operations. In the first place, it may be noted that this treatment is not, as a rule, considered expedient in that large class of cases where elderly persons are enabled to keep themselves reasonably comfortable by the use of the catheter. On the other hand, when a simple prostatic overgrowth gives rise to conditions assimilating it with a malignant tumour encroaching upon the interior of the bladder, sufficient reasons will be found, based already on an ample experience, for proceeding with the removal of that portion of the mass which exploration may prove to be necessary. It is in meeting conditions arising out of excessive growth, chiefly connected with obstruction and inflammation, that the greatest success has hitherto been attained. The circumstances under which an operation having for its object the removal or division of the prostatic growth or barrier may be undertaken will be found well illustrated in the papers which have been selected for this purpose.

As bearing on the general question, reference may first be made to an elaborate paper by Dr. Belfield, of Chicago (*American Journ. Med. Science*, Nov. 1890), who has tabulated 133 cases, including all varieties of this operation, both supra-pubic and perineal, with results which seem to justify its more extended application. Without wishing, at a stage of an inquiry which must await further experience, to give undue prominence to the indiscriminate selection of one method of procedure over another, I cannot refrain from quoting the following passage from the



paper referred to:—"The interests of the patient will doubtless sometimes be better served by a compromise between the requirements of his prostate; perineal prostatotomy is perfectly free from anatomical dangers, and, because so quickly completed, involves less peril from the anæsthetic. It is, therefore, safer; it affords temporary relief in all cases, and a radical cure in a fair minority, for which reason it should, in the writer's opinion, be the operation of choice in feeble patients."

Mr. Southam (*Brit. Med. Journal*, Aug. 30, 1890, and July 25, 1891) reports cases where supra-pubic prostatotomy was performed for retention of urine presenting unusual difficulties in catheterism arising out of an enlarged prostate. In one instance "a vertical section of the portion of the gland which lay behind and below the vesical orifice of the urethra" was performed; whilst in another it is stated that "an enlarged middle lobe was removed through a supra-pubic opening." In the first case "twelve months have now elapsed since operation, and relief still continues." In the second it is noted "the operation was performed a year and a half ago, and the relief which followed continues at the present time."

Mr. R. F. Tobin (*Brit. Med. Journal*, March 14, 1891) reports a case of resection of the prostate gland for enlargement causing retention of urine. The bladder having been opened by the supra-pubic incision, the method of dealing with the obstructing prostate should be noted—"the instrument used to shave off this protuberance was an *écraseur* extemporised in this way. A wire doubled and bent to a suitable curve was passed through the urethra into the bladder; a silver catheter was then slipped up along it, but its point, instead of being passed into the bladder, was made to impinge against the urethral obstruction." By means of this device the growth was snared and successfully removed, as shown in the diagram accompanying Mr. Tobin's paper. This method of dealing with the obstructing mass has much to recommend it, and the reviewer has already availed himself of it with advantage. In reference to this case, it is stated "it is now six months since the operation; the outlet from the bladder continues quite free, and the power of retention improves with the lapse of time." Ziembieki (*Bull. et Mém. Soc. de Chir. de Paris*, 1890) also furnishes evidence of the value of this proceeding in cases where ordinary catheterism fails to provide adequate relief. One of the most recent papers on this subject, read at the Academy of Medicine, New York, is by Dr. Keyes, of that city (*New York Medical Record*, Oct. 31, 1891), who speaks of prostatotomy and prostatectomy "as accomplished facts and splendid additions

to our resources in that class of grave vesical disorders found so often in the best ranks of the community late in life, in those who use their brains rather than their muscles, and lead sedentary lives." Dr. Keyes gives the particulars of eleven cases, three perineal and eight supra-pubic, with three deaths amongst the latter. From these cases the conclusions drawn are—"the perineal operation is moderately less severe, but decidedly less reliable, than the supra-pubic; it should rarely be preferred unless there be urethral complications. In very feeble men it may still be elected—with the rongeur better than any instrument—the bladder can be lowered, and polypoid or interstitial growths jutting into the prostatic sinus can be removed, and these points are more essential to a successful operation than the taking away of a large portion of the prostatic bulk. The instrument next in value is the curved scissors, but the skilled finger is most important of all. Most of the work has to be done by the aid of touch, as the bleeding soon becomes free and renders visual inspection impossible. Chloroform alone, in my opinion, should be used as an anæsthetic 'for the kidney's sake.'"

Apart from the relief that has been immediately afforded by this class of operations, in dealing with unusual obstruction, bleeding, inflammation, and retention, due to a large prostate, there cannot be a doubt that, in a considerable proportion of cases, permanent benefit has followed even in persons of a very advanced age.

Dr. H. Morotti (*Brit. Med. Journal*, May 23, 1891) describes and illustrates Bottini's method of treating prostatic hypertrophy by the galvano-caustic method. The instrument consists of two portions—namely, an incisor apparatus and a special battery. If the hypertrophy is only moderate in degree it is recommended that the obstructing lobe should be entirely destroyed with the cauter. In advanced cases the surgeon should be contented with tunnelling a passage through it. Both these procedures are contra-indicated when kidney disease is present, or is even suspected to exist. Bottini has operated in this manner in fifty-seven cases, with two deaths. In thirty-two cases a perfect cure was effected, in eleven there was improvement, and in twelve the result was nil. Dr. Morotti adds: "The method is not altogether free from danger, unless the greatest care is used, and it should be reserved for cases in which strangury is persistent." The only objection that can be raised against this method of procedure seems to me to be the difficulty of determining, without either ocular or digital exploration, the precise nature and form of the obstruction. The same objection applied to Mercier's



method of dividing the prostatic bar, and impeded the more general recognition of his practice.

## 2. Prostatics and their treatment.

Professor Guyon (*Journ. de Méd. de Paris*, 1891; and *Journ. Cut. and Gen.-Urin. Diseases*, New York, Sept. 1891) recognises three stages in prostatic hypertrophy: (1) Congestion; (2) incomplete retention; and (3) distension and atony of the vesical reservoir, with incontinence and overflow. In the first stage it should be remembered that sedatives and opiates increase the congestive tendency. Iodide of sodium in doses of 20 to 50 centigrammes each day, as acting beneficially on the general system, is recommended, all local treatment being interdicted. In the second stage, where chronic retention requires artificial assistance, the strictest antiseptics should be enjoined. "Often we see old men neglecting not only antiseptics but the ordinary rules of cleanliness, carrying their catheter in the pocket, or the hat, moistening it with saliva in order to lubricate it. It is none the less true that such carelessness is dangerous, that the bladder will be sooner or later inoculated, and the more rapidly the less precaution taken." Where there is vesical suppuration antiseptics are necessary: boric acid in ordinary simple cases, nitrate of silver (1 to 1,000) in more advanced ones. Washing out the bladder demands for its efficacy a certain degree of mechanical action; it should lift up and remove the mucosities and deposits accumulated in irregular bladders, and not constitute a sort of irrigation which passes beneath the mucosities without removing them. In the third stage stress is laid on the importance of resorting to liquid or semi-solid aliments, such as *purées* of meat, eggs, milk, and good wine. Catheterism at this stage requires the most delicate decision. If renal insufficiency is certainly demonstrated it is much better to entirely abstain, in other cases the catheter may be used with all precaution. We should not proceed to a rapid evacuation—to empty at once a distended bladder is to expose the patient to the danger of a vesical hæmorrhage; it is necessary to desist as soon as the urine does not escape in a jet, but dribbles drop by drop. It is specially necessary that the strictest antiseptic precautions should be adopted. Antiseptics should likewise be introduced within the bladder; a 5 per cent. solution of boric acid constitutes the best preparation. As urine is withdrawn it should be replaced by a somewhat less quantity of the antiseptic, a process which may be repeated several times in succession until in this way the contents of the bladder are gradually withdrawn.

In these remarks Professor Guyon has emphasised most of the

points of importance in connection with the general management of prostatic hypertrophy.

### 3. Chronic prostatitis.

Dr. Oberlaender, of Dresden (*Journ. Cut. and Gen.-Urinary Diseases*, New York, July, 1891), states: "For the feeling of pressure in the rectum from painful and enlarged prostate, as well as from the sensitive urethra, I have for many years recommended and employed iodoform suppositories. Iodide of potassium suppositories are impracticable and by far not so efficacious, and usually of no value whatever. The iodoform should be taken up quickly in small quantities, and locally applied, *i.e.*, in the rectum. For this purpose the small amount of iodoform is dissolved in oil of sweet almonds." The formula given is as follows:

R Iodoform 0·5—1·0.  
Solve in ol. amygd. dulc. q.s.  
But. Cac. q.s. Divide in supposit X.

Before introducing the suppository an enema should be given. "If this does not prove sufficiently active, the dose of iodoform can be increased by 0·075 to 0·1 grammes. Sensitive persons display undoubted intoxication symptoms after 0·1 grammes of iodoform per rectum."

### 4. Stone in the bladder.

Since my last annual article in this work some valuable papers on the treatment of stone in the bladder have been published; amongst them, as bearing upon various points connected with operative proceedings, may be mentioned those of Dr. Freyer, Dr. J. A. Cunningham, Dr. Gimlette, and Mr. F. Swinford Edwards (*Brit. Med. Journal*, May 9, 1891). In addition to these we have a valuable paper by Dr. Keegan, chiefly dealing with the details connected with a most successful series of lithotrities in children, embracing 125 operations, with a mortality of  $3\frac{1}{2}$  per cent. (*Trans. Med. Soc. Lond.*, vol. xiv.). In this essay will be found some important points relating to the performance of lithotrity in male children which cannot be too carefully studied. In Mr. F. Swinford Edwards's paper, based upon forty consecutive cases of lithotrity, much stress is laid upon the use of antiseptics in connection with these operations, and with exemplary candour he observes, "I believe that two of the four fatal cases I have recorded might possibly have ended differently had I been more careful as to antiseptics."

### 5. The importance of the post-prostatic (or trigonal) pouch in the surgery of vesical calculus.

Mr. G. Buckston Browne (*Lancet*, April 18, 1891) furnishes an important paper on this subject. In the first place the nature of



this pouch is pointed out. "If the patient be supposed to be lying down, it may be said to consist of the trigone of the bladder pushed down between the enlarged and projecting prostate in front and a thickened and firm inter-ureteral ridge behind." The object of this paper is to put forward the two following propositions: "(1) That owing to the post-prostatic pouch, vesical calculus is often difficult to detect in cases of enlarged prostate, and that if the pouch is deep it may be absolutely impossible to find the stone by any instrument passed in through the urethra. (2) That owing to the occasional depth of the post-prostatic pouch, lithotripsy is sometimes an impracticable operation, it being mechanically impossible to evacuate the bladder of all *débris* by urethral instrumentation." From the author's experience and the cases recorded, the practical outcome of the paper is summarised under three headings: "(1) The insistance in all doubtful cases of vesical suffering where the prostate is enlarged upon careful search being made behind that organ. In sounding in such cases it is not enough merely to reverse the beak of the sound, but thorough examination must be made with the reversed beak for the slit-like opening between the intra-vesical prostatic growth and the inter-ureteral ridge, which may be the sole means of access to a large prostatic pouch, when such a pouch exists. For this investigation a sound I have designed with a beak like a flat-bladed lithotrite will be found useful. (2) When there is reason to believe that there is a deep post-prostatic pouch it will be well, save in very exceptional cases, not to attempt lithotripsy, for it is when performed under such conditions that lithotripsy is likely to be discredited, because it may be impossible to clear the pouch of all stone by instruments passed in the urethra. (3) When calculous symptoms and vesical distress continue in spite of treatment and no stone can be found by the usual methods, and also in cases where a stone is found but lying deeply in a post-prostatic pouch, it is urged that the bladder should be opened by supra-pubic incision in preference to all others." In the discussion that followed the reading of the paper Mr. Campbell Williams said "that his experience, gained from Mr. Berkeley Hill's practice, concurred with that of Mr. Browne in the expediency of performing supra-pubic lithotomy instead of urethral when the patient was the subject of enlarged prostate with a post-prostatic pouch. Comparing the high operation with median cystotomy, in this class of case it was easier to perform; the former produced less shock and practically no loss of blood. It, moreover, possessed the advantage that the interior of the bladder could be examined by the eye as well as by the finger."

In noticing these important communications it is impossible not to feel that the pendulum has swung too far in the opposite direction, and that we are now frequently crushing for stone where cutting would be wiser. The extreme frequency with which recurrences take place after lithotripsy, even in the hands of the most competent lithotritists, is in itself sufficient to indicate this. Though much prejudice naturally exists in the present day against all cutting operations for stone, and the judgment of the surgeon, in border-line cases, is thus to some extent handicapped, there can be no doubt much suffering, ultimately ending in death, might be averted by a greater discrimination being exercised in the choice of operation.

**6. On the use of Petersen's rectal bag as an aid in sounding for stone, and in lithotripsy where the bladder is pouched or sacculated.**

Mr. Reginald Harrison (*Lancet*, March 14, 1891) writes:—"About the time I was making some observations bearing upon this point (altered forms of the bladder), I was seeing a patient from whose bladder on two occasions, at short intervals, I had removed phosphatic calculi of small size. The prostate was large, there was a considerable amount of residual urine, and the posterior wall of the bladder was pouched and irregular. It seemed probable that there was more calculus in the bladder than could be got at in the ordinary way, and I thought it likely that some form of cystotomy might be necessary. Wishing to avoid this, and considering it possible that a stone might be lodged in a sacculus, I introduced Petersen's bag, as used in supra-pubic cystotomy, and turned out into the general cavity of the bladder a phosphatic stone having a diameter of  $1\frac{1}{2}$  inch, which was readily crushed and evacuated in the ordinary way. It is now a year since the last operation, and the patient is quite well. Before that operation the patient could not sit down with any comfort, by reason, I presume, of the pressure of the fixed stone on the prostate. He can now dispense with the catheter, and as the amount of residual urine does not exceed an ounce, I conclude the sacculum having once been properly emptied is becoming less." A further experience of this expedient has convinced me of its utility in exploring the bladder.

**7. A new vesical speculum for use in supra-pubic cystotomy.**

Mr. W. Bruce Clarke (*Brit. Med. Journal*, July 4, 1891) describes and illustrates an instrument of this kind: "When brought into use it is introduced into the bladder-wound closed, and is subsequently opened to any extent that may be required. The



handles are placed uppermost over the belly, and form with the blade an obtuse angle; by this means they can be more easily employed than would otherwise be the case with a fat abdomen." It is claimed by Mr. Clarke that a three-bladed instrument presents advantages over the double-bladed varieties of Watson and Keen, in that the former keeps back the posterior wall of the bladder and renders the introduction of a retractor unnecessary.

**8. Cases in which a non-malignant communication existed between the bladder and intestines.**

Mr. Reginald Harrison (*Trans. Med. Society of London*, vol. xiv.), in summing up the treatment of such cases, considered that where the communication between the bladder and bowels was small there was evidence to show that persons might be kept in good health by attention to diet and restraining any tendency to diarrhoea. Where the fistula was large, or the urine rendered offensive, the formation of an artificial anus became necessary, with the view of diverting the flow of faeces, and thus giving the false passage a chance of contracting and closing. Though it sometimes happens that the small intestine is involved, yet, taking into consideration the probability of recognising this, it seemed best to make the opening in the right or ascending colon. In one instance, had consent been given, where the contents of the bladder were most offensive, and there was considerable doubt as to the intestine involved, it was suggested that a supra-pubic opening into the bladder should be made for drainage and exploration. This would certainly have given immediate relief, and might have led, as the case was proved to be non-malignant, to some direct steps being taken to close the fistula from the bladder-side.

**9. Septic infection following urethral operation.**

Dr. S. Alexander (*Journ. Cut. and Gen.-Urin. Diseases*, New York, Feb. 1891), in illustrating these complications, observes:—"This case is a striking example of the danger of septic infection after catheterism, internal urethrotomy, and the like, in cases of stricture of the deep urethra with ammoniacal or foetid urine. Owing to this danger I have almost given up treatment by dilatation in such cases, and prefer to perform at once the external perineal operation with vesical drainage in the manner suggested by Mr. Harrison. In this way the stricture can be at once disposed of and the bladder thoroughly disinfected and drained. The use of the perineal tube prevents contact of the urine with the urethra. Up to the present time I have treated in this manner more than thirty cases of stricture in which the urine was ammoniacal or foetid. In all of these there was partial or complete retention of urine."

**10. The treatment of hydrocele by carbolic acid injection.**

Dr. S. E. Milliken, of New York (*Annals of Surgery*, Oct. 1891), writes :—" Out of the large number of cases of hydrocele met with in the hernia department of the hospital for ruptured and crippled I have injected fifty-four with carbolic acid. Of these cases nine were never seen after the injection, five paid me one visit within the first week only, and four are at present under observation. This brings my number down to thirty-six, all of whom were cured; twenty-seven had one injection, four had two injections, five had three injections. In no case has sloughing occurred, and not one of the thirty-six patients lost more than twenty-four hours from business. From two to six weeks is necessary for the absorption of the exudation to take place, and thickening of the sac may remain much longer. Although a drachm and a half of the acid has been injected without any detrimental effect, a smaller quantity has caused sloughing. I therefore prefer doing a second, or even a third operation, using in no case more than thirty minims." Mr. Southam (*Lancet*, vol. ii., 1891) adds some further experience to the treatment of this affection by excision of the sac, a proceeding which could only be necessary where the condition of the tunic was such as to have resisted treatment by injection.

**11. Tuberculin in connection with urinary tuberculosis.**

Mr. Hurry Fenwick (*Lancet*, May 1, 1891) states :—" The swelling of the peri-tuberculous tissues led to suppression and retention of urine, and the use of the lymph was liable to produce hæmorrhages. The tuberculous deposits could by means of the cystoscope be seen to swell up in the same way as in the skin, and new deposits came into sight. It could only be of use in the earliest stage of vesical tuberculosis."

From these observations it is obvious that in some cases of urinary tuberculosis, where, as it not unfrequently happens, both ureters are involved, as well as other portions of the urinary apparatus, complete suppression of urine might be one of its effects.



## DISEASES OF THE RECTUM.

BY ALFRED COOPER, F.R.C.S.

*Senior Surgeon to St. Mark's Hospital.*

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### **1. A new operation for prolapsus or procidentia of the rectum.**

Brigade-Surgeon K. Macleod, Professor of Surgery in the Calcutta Medical College (*Lancet*, July 19, 1890), under the above title describes a method which he has practised with success, and which is based on the same principle as Alexander's operation for procidentia uteri—the upper part of the rectum is fixed to the abdominal wall above the pelvic brim.

Cases of prolapsus are very common in India; the rectum is simply turned inside out, and the protrusion consists of a hollow bag, the centre of which is occupied by a portion of the sigmoid flexure, in front of which there is a peritoneal sac, the rectovesical pouch, and behind, a mass of mesocolon. An attack of dysentery gives the earliest provocation to the prolapsus, which gradually increases, and at length becomes irreducible, or descends on the slightest exertion. Sometimes when irreducible, ulceration, sloughing, or gangrene sets in, and the opposed peritoneal surfaces become glued to each other; reduction is then either unsafe or impossible. Amputation of the mass is sometimes practised in such cases.

Dr. Macleod recommends the following plan, after milder measures have failed:—The bowels having been previously well cleared out, carbolic lotion (1 to 40) is applied to the protrusion, which is then reduced. The left hand is passed into the bowel, and the fingers are made prominent above Poupart's ligament. A long steel acupressure needle is passed through the abdominal parietes into the cavity of the gut, guided across its interior by the fingers, and passed outwards until it emerges about three inches from the point of entrance. The needle should be parallel to, and one inch above, Poupart's ligament. Another needle is passed in the same way 3 inches above the first, and external to it, so as to secure the intestine in an oblique position from below upwards. The upper end of the rectum, or the lower end of the sigmoid flexure, is thus temporarily fixed in the desired position; the hand is then withdrawn.

The next step is to make an incision, three inches long, between the needles and at right angles to them, in the longitudinal axis of the intestine, as near the middle of the applied part of it as possible. The layers are to be divided separately, until the parietal peritoneum is reached; this will usually bulge out. The left hand is now reintroduced into the bowel, and guided by the fingers, two series of loops of silk thread are inserted, four on each side (as described by Mr. Howse in the article on "Gastrostomy" in Heath's *Dictionary of Practical Surgery*), at a distance of about an inch apart, so as to attach the serous and muscular coats of the intestine to the abdominal wall. A series of these loops, also penetrating the two outer walls of the intestine, are placed between successive pairs of these rows, in order to bring the lips of the wound together; and between them smaller horsehair stitches of adaptation are inserted. Antiseptic precautions and dressings are employed, and after the operation a morphine suppository is introduced into the bowel, and opium is given every three hours. In a case thus treated the steel pins were removed in twenty-four hours, and the horsehair stitches on the tenth day; there were no bad symptoms, but feces had to be removed occasionally from the bowel. Three weeks after the operation the rectum was found to be in its normal position; and three weeks later the patient was discharged from the hospital.

Dr. Macleod subsequently reported (*Lancet*, October 11, 1890) that the patient returned to the hospital seven weeks after his discharge, stating that a small protrusion of mucous membrane had occurred from time to time when straining at stool. It disappeared on resuming the erect posture, but seemed to be getting larger and to have been aggravated by an attack of dysentery. On examination, the mucous membrane on the right side of the rectum was found to be redundant and loose. The patient being placed under chloroform, the redundant membrane was drawn down, and, together with a portion of the verge of the anus, secured in a Smith's clamp, cut off, and carefully cauterised. The bowels were kept locked up for a few days, and in less than three weeks the patient left the hospital with the parts perfectly healed, and the bowel free from redundant mucous membrane. Dr. Macleod points out that in the first operation the reduction was effected by reposition and not by traction, and also that the mode of fixation was very different from that recommended by Mr. Allingham, which he considers to be inefficient and not devoid of danger.

Mr. Herbert Allingham (*Lancet*, vol. ii., 1890, p. 205), commenting on the above-described method, points out that in the fifth



edition of *Allingham on Diseases of the Rectum* he recommended a similar plan for those cases in which the upper part of the rectum prolapses into the lower, but does not come outside. For cases in which the prolapsed portion escapes from the anus, he has complete faith in Van Buren's plan of linear canterisation; amputation of the protruded part he considers to be unnecessary.

## **2. Operation for complete prolapse of the rectum.**

Dr. James Bell, of Montreal (in the *Annals of Surgery* for May, 1891), records a case of complete prolapse of the rectum, upon which he operated by a method devised by Dr. J. B. Roberts, of Philadelphia. The operation consists in the removal of V-shaped portions of the sphincter, and of the entire posterior wall of the rectum. It is claimed that this plan will yield satisfactory results in cases apparently irremediable by any other method of operating.

In the case recorded, the patient was a woman aged 22, suffering from rectal prolapse to such an extent that slight movement in the erect posture would cause a protrusion of from four to 6 inches in length. The condition was of five years' duration, and had gradually become worse. At all times there was imperfect control of the sphincter ani, and when diarrhoea existed the discharges took place involuntarily. There was a history of a fall upon the back some twelve years previously. On examination, the sphincter was seen to be greatly relaxed and lying open; its contractile power was so small that a man's hand of ordinary size could be easily introduced. The prolapse had originated in the paralysis of the sphincter, which was presumably due to the accident.

The operation was performed as follows:—The bowels having been thoroughly evacuated, and the patient placed under the influence of an anæsthetic, a V-shaped piece was removed, having its apex at the point of the coccyx, and its base consisting of the posterior part of the sphincter from  $1\frac{1}{2}$  to 2 inches in length. A similar piece was then removed from the posterior part of the rectum, so as to include its whole thickness, and having for its base the same portion of the sphincter, and its apex about four inches up the bowel. The bleeding was free, but not alarming; the wound in the bowel was closed by interrupted sutures of fine silk, and the ends of the sphincter were brought together by two strong silk sutures, and another was inserted just below it. A drainage-tube was introduced at the apex of the coccyx and passed up behind the line of suture in the rectum. The patient did well, and was allowed up six weeks after the operation; six weeks later she was discharged from hospital, having fair control of the sphincter. When seen more than two months afterwards

there was great improvement in all respects; there had been no return of the prolapsus, although the girl had been actively engaged in domestic housework.

### **3. The treatment of complete prolapse of the rectum.**

Mr. Cripps (*Lancet*, Oct. 11, 1890) points out that in chronic aggravated cases, partial removal of the prolapsed part is not sufficient, and that complete excision is attended with great risk to life and danger of stricture. The latter method may, however, sometimes be the only plan of dealing effectively with very severe prolapsus. In the large majority of aggravated cases, Van Buren's plan of linear cauterisation proves highly efficacious. Its *rationale* consists in the excitement of inflammation in the submucous tissue; the consequent exudation cements the rectal coats more firmly together, prevents sliding, and furnishes an increased stiffness to the whole bowel. The Paquelin cautery is not a suitable instrument for this purpose; it is too hot when first applied and cools too rapidly. Two cautery irons are required; these should be short and bent at a right angle near the conical head, about half-an-inch in diameter; they are best heated over a large spirit lamp.

After the operation, a thick indiarubber tube,  $\frac{1}{3}$  inch calibre, 7 inches in length, should be passed up the bowel for 5 inches. Then strips of oiled lint should be passed up as high as possible, so as to line the surface of the bowel. Between the lint and the tube, cotton wool, well dusted with iodoform powder, should be evenly and carefully packed. This will give a firm and even support to the lower portion of the bowel, and will render material assistance in preventing the descent of the part in the early stage of healing, before the adhesions are firm. After forty-eight hours the dressings may be removed. For some weeks afterwards all motions should be passed while the patient is lying on his side, and the anus should be drawn a little from the median line. It is necessary that the operation should be done quickly and the bowel returned as soon as possible, otherwise congestion and swelling may make reduction difficult. The lines of canterisation are pretty sure to cross one or more large dilated veins; these should be tied on either side of the line, a needle threaded with silk being passed beneath them.

### **4. The treatment of prolapsus by raising the lower part of the rectum.**

Dr. Verneuil, of Paris (*Annals of Surgery*, March, 1891), has proposed a new method of dealing with prolapse of the rectum, the object aimed at being to raise and attach the bowel to the region of



the coccyx. The operation is performed as follows :—The prolapsus being replaced, and the patient being in the lithotomy position, two incisions, from  $1\frac{1}{2}$  to 2 inches in length, are made at right angles to the long axis of the anus, from the orifice of the latter in an outward direction. From their terminations on each side incisions are carried to the apex of the coccyx, and the triangular flap thus made is loosened from behind forwards, and left attached to the tissues surrounding the anus. This flap is drawn up with blunt retractors, and the posterior wall of the rectum is detached for a breadth of about  $2\frac{1}{4}$  inches, and above to a height corresponding to the distance from the anus to the apex of the coccyx. Four threads are now passed transversely through the posterior rectal wall, parallel with each other and not including the mucous membrane. The highest of these sutures is in close relation to the apex of the coccyx, while the lower one is about 15 mm. from the anus. By means of a needle with an eye near the point, which is passed through the skin from without, the threads are drawn through the points of emergence of their respective ends, at about  $1\frac{1}{2}$  inch on either side of the median line. The upper suture should be on a level with the articulation between the first bone of the coccyx and the sacrum, and the lowest at about the apex of the former bone; the intervening sutures are placed about equidistant between. The first and second and the third and fourth sutures respectively are tied together, rolls of iodoform gauze being placed between the loops to prevent the latter from being buried in the skin. Strong traction upon these secures the rectum in its new position, and the other ends of the threads are similarly secured. The triangular-shaped flap is now removed, the muco-cutaneous anal margin being preserved, and after the insertion of a drainage-tube the wound is closed by sutures.

##### **5. The treatment of fissured anus based on a new view of its pathology.**

At the last annual meeting of the British Medical Association, Mr. Charles B. Ball (*Brit. Med. Journal*, Sept. 12, 1891) advanced the view that fissure of the anus is not necessarily due to over-distension during the passage of hard fæces, but that it often arises from laceration of one of the muco-cutaneous processes termed "anal valves." One of these is caught by some projection in the fæcal mass and its lateral attachments torn; the sore is reopened and possibly enlarged at each motion, an ulcer results and the torn-down valve becomes swollen and œdematous, constituting the so-called "sentinel pile" of the fissure. This torn anal valve may be compared with the little bits of torn skin often found at the sides of the finger-nails.

With regard to treatment, Mr. Ball stated that removal of this little tag will cure the fissure. The method of operating is as follows :—The bowels having been previously fully relieved, and the patient being under the influence of an anæsthetic, the anus is thoroughly dilated with the fingers and the fissure or ulcer is exposed. The torn down anal valve, often much hypertrophied, is seized with a suitable forceps, and removed by a V-shaped incision with a pair of fine scissors. Any unhealthy granulation tissue must then be scraped off with a sharp spoon, and the surface well dusted with powdered boric acid. The other anal valves should be carefully examined, and any that may have been torn down should be similarly treated. The cure will then be as immediate and certain as when the little torment at the side of the finger-nail is shaved off level with the skin. Mr. Ball reported ten cases thus successfully treated.

#### **6. The newer operations for cancer of the rectum.**

At the International Medical Congress held in Berlin last year, Dr. Axel Iversen, of Copenhagen, formulated the following conclusions from 247 cases of excision of the rectum, in Denmark, Sweden, and Norway (*Lancet*, Jan. 24, 1891). 1. The older as well as the more recent operations (amputation and resection) are only palliative procedures; they are more dangerous than colotomy, but in successful cases result in a longer tenure of life. 2. Extirpation of the entire rectum, together with diseased glands, is the most reasonable method, and in favourable cases the result is a radical cure. The operation is very dangerous when the disease is far advanced. Of nineteen cases of Kraske's operation, eight died. 3. The greater number of cases must still, as formerly, be treated palliatively, *i.e.*, by colotomy; most patients present themselves too late for a radical operation.

Mr. Bryant submits that excision is applicable only to cases where the disease is limited to the lower  $2\frac{1}{2}$  inches; and all can be removed. In other cases, colotomy or rectotomy should be performed. König, of Göttingen, recommends Kraske's method; in his hands the recent mortality of cases thus treated has been 12 per cent.; he has given up uniting the gut section to the skin.

Czerny, of Heidelberg, reported eighteen rectal extirpations, with four deaths; in all the fatal cases the peritoneum was opened. He advises that the peritoneal wound should be immediately sutured. He thinks that the prognosis is better when cancer affects the upper part of the rectum. In one of his cases, where the growth was nearly 5 inches from the anus, the patient lived twelve years after the operation. The best prognosis



is in carcinoma of the mucous membrane, which infects the glands late, and in scirrhus strictures with pain as an early symptom.

**7. Extirpation of carcinoma high up in the rectum by means of two successive operations.**

Dr. Rehn, of Frankfurt, A.M., recommends certain modifications of Kraske's method for dealing with cancer situated high up in the rectum (*Annals of Surgery*, 1890, vol. ii, p 375). The method in question presents certain advantages: hæmorrhage is easily controlled and a normal sphincter is left, but the mortality is very great, *i.e.*, more than 20 per cent. Dr. Rehn lost three out of his first five cases. He now suggests osteoplastic resection as a preliminary; the incision is made on the left side of the sacrum and ilium, the former bone is divided transversely between the third and fourth openings, and the flap of bone and the soft parts are turned over to the right. The dangers of the operation are collapse and infection from the fæces. This parasacral incision affords plenty of room for operating; the growth should be removed, not from below, but from above and behind. Various plans have been adopted to ward off secondary infection, the chief being (1) the application of an iodoform gauze tampon; (2) avoidance of circular suture; the rectum is allowed to remain open in the posterior part of the periphery; (3) colotomy after Schede.

The author thinks that danger may in great measure be avoided by preliminary exposure and loosening of the new growth, without wound of the gut. Hæmorrhage is carefully arrested, and the wound cavity is loosely tamponaded. The loosened gut is brought up to the level of the skin by passing strips of iodoform gauze underneath it. Opium is administered for four days, and afterwards laxatives and injections. If it now appear that insufficient evacuation of fæces is caused by the growth, the intestine may be incised without danger above the stricture. This should be done ten days after the first operation. The gut is pulled down and united to the lower portion; and after a drainage-tube is put in, the wound is closed. If the bowel should tear during the first step, the growth should be at once removed, and the central piece of the gut should be attached to the skin in the lower angle of the wound. The circular suture of the gut will follow in a second operation.

**8. Extirpation of syphilitic stricture of the rectum.**

M. Quenu has recorded a case of very tight syphilitic stricture of the rectum, occurring in a woman aged 36 years, and in which, by the posterior median incision, he excised the lower extremity

of the intestine, together with the surrounding indurated tissues (*Bulletin de la Soc. de Chir. de Paris*, No. 3, 1891). The patient made a good recovery, and was found to be quite well seven months after the operation. M. Quenu believes that in cases of this description simple dilatation is often useless; it is, moreover, apt to be very painful, and is attended with a certain amount of risk. Posterior linear proctotomy sometimes proves more efficacious; but it is for the most part merely a palliative operation, and it may be followed by chronic and exhausting suppuration. If this form of rectal disease be uninfluenced by specific medicinal treatment, it should be regarded and treated as a new growth. If the lower end of the rectum be involved, the part should be excised in the usual way in the perineum; but if the higher portion be implicated, Kraske's method (division of soft parts on left side of the sacrum) should be adopted.

**9. Rupture of the rectum by Petersen's colpeurynter during an attempt to perform cystotomy.**

Dr. Fowler, of Brooklyn, records an accident of this kind, the patient being a man aged 63 (*Annals of Surgery*, vol. ii., 1890, p. 129). The bag was introduced into the rectum and 8 ounces of water injected. On making the incision when the parietal peritoneum was reached, a black mass was visible in the abdomen, and was found to be the colpeurynter. On withdrawing the latter, a rent, fully 4 inches long, was found in the anterior wall of the rectum and reaching as far as the sigmoid flexure. The abdominal cavity was washed out with boiled distilled water, and an attempt was made to close the rent, but the accurate adjustment of the lower portion proved to be impossible. The condition of the patient forbade further interference, and an artificial anus was established by bringing the edges of the tear in the rectal wall up to the lower angle of the incision, and securing them in that position. Adjustment was rendered very difficult by the thinning and softening of the rectal structures, and the patient died a few hours afterwards. The rupture took place in consequence of the altered state of the rectal wall incident to senility, combined with the degenerative changes which the surrounding parts are known to undergo in chronic vesical disease. The quantity of water in the bag was less by 2 ounces than that usually injected.



## VENEREAL DISEASES.

By J. ERNEST LANE, F.R.C.S.,

Surgeon to Out-patients, and Lecturer on Anatomy, St. Mary's Hospital;

Surgeon to Out-patients, London Lock Hospital.

### 1. The general treatment of syphilis.

At the tenth International Medical Congress held in Berlin in August, 1890, various papers were read and discussions held upon the treatment of syphilis, and an epitome of the opinions then expressed may be of interest.

Dr. E. Ehlers, of Copenhagen, advocated the abortive treatment by early excision of the initial lesion (*Journal of Cutaneous and Genito-Urinary Diseases*, Oct., 1890). His experience was based upon thirty-seven excisions, in thirty-two of which definite results were obtained. In nine cases the effect was positive, in twenty-three negative; in the nine cases with positive effect the age of the chancre, dating from the time of infection, was less than twenty-one to twenty-five days. In cases in which the chancre had been excised, the subsequent course of the disease was more benign; in 89 per cent. of the cases of excision the syphilis was mild, whereas without excision its course was mild in only 64 per cent. As to whether the second period of incubation was prolonged by excision, the author expressed a doubt; the average in his cases was fifty, instead of forty-six days when excision had not been resorted to.

Professor Leloir also read a paper advocating this method of treatment (*Journal des Maladies Cutanées et Syphilitiques*, par Dr. H. Fournier). He recommended excision of a chancre under the following conditions:

1. If seen quite at its commencement.
  2. For chancres situated in some region where excision could be practised easily, and without any danger, *e.g.*, the labia or prepuce.
  3. In chancres not yet attended by adenopathy.
  4. In single chancres, or in multiple, if capable of being easily removed.
  5. The patients must be free from diabetes or albuminuria.
- [In a more recent communication upon this subject Professor

Leloir has considerably modified his opinion as above expressed, and states that, after excising many chancres, and seeing many others excised, he considers syphilis follows the operation just the same. (*Wiener Med. Presse*, No. 14, April, 1891).]

In the discussion on these papers, all, with the exception of Neumann, who regarded excision as useless, were agreed as to the theoretical possibility of aborting the disease by an early excision of the initial lesion; it at least gave the patient the chance of a mild attack, which it was incumbent upon the surgeon to offer him.

Professor Leloir recommended that specific treatment should not be commenced until the appearance of the secondary symptoms, because the diagnosis of primary syphilis was not always easy. His statistics of cases treated with mercury *ab initio*, and of those treated on the appearance of secondary symptoms, showed that the later manifestations have not been more frequent in one class than in the other; in fact, some of the most refractory cases of cutaneous and mucous syphilides, were in patients placed on mercury when the chancre first appeared. From half a drachm to two drachms of mercurial ointment should be applied for fifteen days, then an interval of fifteen to twenty days is allowed, and this alternation is continued for a year; during the second year they should be given for ten days at intervals of from three to six weeks, and during the third and fourth years only at spring and fall.

Diday recommended half a grain of proto-iodide of mercury three times a day, with iron and iodide of potassium in anæmia; he believed that things proscribed were more important than things prescribed.

Drs. Scarenzia and Lang advocated intra-muscular injections of mercury. The consensus of opinion seemed to be that there was no advantage in commencing the treatment until the manifestation of secondary symptoms. The treatment by intramuscular injections of mercury had not been generally adopted, largely on account of the intolerance of patients, while it was further pointed out that inunction had the disadvantage of uncleanness, was liable to cause skin affections, while the quantity of the drug absorbed was uncertain.

## **2. The treatment of syphilis of the nervous system.**

Dr. Althaus (*British Journal of Dermatology*, April, 1891), in his paper, which was also read at the Berlin International Congress, directed attention to the treatment, not only of nerve syphilis, but also of the earlier stages of the disease. He favoured excision of the initial lesion, and urged early and con-



tinuous treatment by mercury. Patients whose systems were impaired by excesses, exposure, or hard work, and in whom the early treatment had been neglected, were liable to nerve syphilis, especially if there were a co-existing neurotic tendency.

The author favoured the administration of mercury by intramuscular injections, and had devised a non-irritating insoluble preparation made by rubbing up one part of metallic mercury with four parts of the purest lanolin, and five parts of a 2 per cent. carbolic oil, until a perfectly homogeneous grey cream was formed, in which the globules of the metal could not be distinguished by the microscope. This mixture presented the following advantages: it could be accurately measured, it remained stable for months, and, owing probably to the anæsthetic action of the carbolic acid, it caused no pain, and was not followed by abscess; five minimis, which contained half a grain of mercury, should be injected into the glutei muscles once a week. Iodide of potassium was indispensable where it was necessary to rapidly combat and arrest the progress of nerve syphilis, but the author had not found it to possess any actual curative properties. Application of the constant current often helped to promote nutrition where nerve tissue had been simply damaged. A large electrode placed over the epigastrium, and a smaller one applied to various other spots with a current of one to five milleampères for ten to fifteen minutes, was the most useful method of application, the direction of the current being reversed occasionally. This was most useful in cephalalgia and neuralgia, and, acting as a nerve sedative, it promoted sleep. In affections of the cord faradisation was sometimes more useful than the constant current. In brain syphilis the application of cold by means of Leiter's tubes often proved of more service than medicinal sedatives, though these should be tried in severe cases.

### **3. Energetic inunctions in cerebral syphilis.**

Dr. Mader, of Vienna (*Med. Press and Circ.*, Feb. 25th, 1891), reports a case of severe cerebral syphilis which yielded to treatment by mercurial inunctions and the administration of iodide of potassium. The patient was a young woman, aged 28, in whom were present all the symptoms of extensive syphilitic meningitis, viz., severe headache, giddiness, paralysis of the left abducens with diplopia, constant vomiting, and weakness of the right arm.

The treatment was commenced by the administration of iodide of potassium in 30-grain doses, but, the symptoms not abating, on the fourth day inunction with the unguentum hydrargyri cinereum was commenced, the amount used daily being 5 grammes

(77 grains). Three days of this treatment sufficed to mitigate all the graver symptoms, but the inunctions were continued daily until forty-six altogether had been administered, at the end of which time the patient left the hospital completely cured.

**4. The treatment of nerve syphilis by intra-muscular injections of perchloride of mercury.**

Dr. W. Hale-White (*Lancet*, June 6th, 1891) advocates the use of intra-muscular injections of perchloride of mercury in syphilis, especially when the nervous system is affected, and in other cases in which it is necessary to bring the patient rapidly under the influence of mercury. In order to avoid the hard, painful swellings by which the intra-muscular injections of this drug are usually followed, Dr. Hale-White employs the method described by Dr. MacCall Anderson. The part selected for the injection is preferably the gluteal region, but if this should be, from sores or any other reason, unavailable, the outer and front part of the thighs and the biceps of the arm are the sites recommended. The needle of the injection syringe is plunged deeply into the muscles, and an eighth of a grain of hydrochlorate of morphine is injected. The syringe is then detached from the needle, which is left in the muscles, and an eighth of a grain of perchloride of mercury is injected through the needle. Dr. Hale-White gives one injection every evening, and desists for a few days if the patient shows any sign of salivation. Notes of ten cases treated in this manner are appended; in eight of these the nervous system was affected, three being cases of cerebral syphilis, and the others of myelitis and peripheral neuritis. One patient died of bed-sores and cystitis, but all the others improved rapidly under the treatment.

**5. The treatment of syphilitic pseudo-paralysis of infants.**

Dr. Jules Comby insists (*Supplement Brit. Med. Journ.*, Oct. 10, 1891; *Rev. des Mal. de l'Enf.*, Oct., 1891) on the importance of the early diagnosis and prompt treatment of the condition known as pseudo-syphilitic paralysis, to which he proposes to give the name "Parrot's disease." In a typical case, paralysis of one or both upper limbs (the lower being more rarely involved) comes on a few weeks after birth; the limb is tender, and swelling of one or more of the epiphyses may be detected; other symptoms of congenital syphilis may be present, but are not always so, and occasionally the paralysis comes on without any epiphyseal swelling or tenderness. The treatment recommended is mercurial inunctions daily and corrosive sublimate baths thrice a week. These baths are prepared by adding 1 gramme of corrosive sublimate, dissolved in a sufficiency of alcohol, to 20 or 30 litres of water; the bath must be given in an



enamelled or wooden tub. Specific treatment must be continued after the disappearance of the pseudo-paralysis. After a few months or weeks, mercurials may be replaced by iodide of potassium, which should be given, with occasional intermission, for months, or even years (daily dose at three months, gr.  $i\frac{1}{2}$ ; at six months, grs. iii.; at one year, grs. iv. to v.; at two years, grs. v. to vi.; at three years, grs. vii. to viii.).

**6. On the treatment of syphilis by intra-muscular injections of thymol acetate of mercury.**

Dr. Szadek, in the *Wiener Med. Wochenschr.*, No. 22, 1890 (*London Medical Recorder*, Dec. 20, 1890), recommends intra-muscular injections of thymol acetate of mercury in cases of syphilis both recent and chronic. The formula employed was as follows:—

Thymol acetate of Mercury	...	...	1.5 grammes.
Mucilag.	...	...	0.5 "
Aq. destil.	...	...	20. c.c.

The injections were made deeply into the muscular tissue, and repeated every three or four days. Eighteen cases were treated in all by 112 injections. Treatment lasted over forty-two days, the shortest duration being twelve days. Generally after two or three injections the exanthem became paler and papular eruptions began to disappear, and after four injections ulcers began to assume a healthy appearance. As a rule, macular eruptions of recent date required from four to six injections, while papular rashes did not disappear completely till after six to eight injections. Under this treatment obstinate squamous or pustular syphilides, and even ulcers of specific origin, disappeared with much greater rapidity than under any other mercurial treatment. The author obtained a particularly favourable result in two cases of syphilitic laryngitis with complete aphonia, all the symptoms ceasing after the first injections. In no cases were either induration or abscess produced at the seat of puncture; stomatitis was seldom observed, and when it occurred was quite unimportant, yielding at once to simple treatment.

**7. The treatment of syphilis by proto-iodide of mercury.**

Dr. Castano, of Buenos Ayres (*Anales de la Asistensia Publica*, Buenos Ayres, 1890), employs the following formula in the treatment of syphilis:—

R. Hydrarg. Protoiod	...	...	...	gr. $\frac{1}{2}$
Iodoform	...	...	...	gr. $\frac{3}{4}$
Ferri Sulphatis	...	...	...	gr. $\frac{1}{2}$
Ext. Opii	...	...	...	gr. $\frac{1}{12}$
Ext. Gentianæ, sufficient to make one pill; to be taken three times a day.				

Proto-iodide of mercury is the mercurial preparation which is best borne by the stomach, and its effects are very rapid; when combined with iodoform its ill-effects are neutralised, and the mixture acquires in addition some special properties; for with the proto-iodide alone the same favourable and rapid results are not obtained as when it is given in conjunction with iodoform. On account of the changes in the blood which accompany syphilis, the author considers that iron is needed; it has the effect of raising the temperature somewhat, and, according to Dr. Castano, heat is one of the principal factors in the treatment of syphilis. It is a fact incapable of explanation that cold produces an aggravation of the symptoms of the disease; it seems that in a cold climate mercury is stored up in the system, and remains without any action upon the syphilitic virus; if the dose is increased, mercurial cachexia may be induced. Under these circumstances the author considers that mercury requires the assistance of heat to enable it to circulate in the system and to produce the desired therapeutical action. Syphilis in warm countries appears to be latent; its manifestations may be called benign if one compares them with the disease in a cold climate; but if the patients change their climate the symptoms become aggravated. The author states that he has seen such favourable results from the treatment by Turkish baths during the winter that he considers them an indispensable addition to the treatment. He commences treatment immediately that the diagnosis of a syphilitic chancre has been made, considering that if there is any delay in its commencement the patient is more liable to subsequent complications.

### 8. On the treatment of syphilis with mercury succinimide.

Herr Vollert (*Wiener Therapeutische Monatschrift*, November, 1890), who has already published favourable results following the treatment of syphilis by means of succinimide of mercury, again refers to this subject, having, since his first publication, been able to confirm, by further experience, the observations therein reported. Succinimide of mercury is prepared by allowing oxide of mercury to combine with succinimide according to the formula:  $2(C_4H_5O_2N) + HgO = (C_4H_4O_2N)_2Hg + H_2O$ .

Vollert prescribes daily injections of one Pravaz syringe-full of the following solution:—

Hydrargyri succinimidati (Kahlbaum)	...	Parts	2
Cocain muriatis	...	Part	1
Aque destillatæ	...	Parts	100

S. For subcutaneous injection.

It is claimed that this remedy is quite as active as the insoluble



salts of quicksilver, and, being soluble, is devoid of the dangers which are occasionally observed to accompany these preparations. For practitioners who are not habitually employed in the treatment of syphilis, injections of succinimide of mercury are recommended as being, next to the treatment by inunction, the safest and surest method.

### 9. Intramuscular injections of the salicylate of mercury in syphilis.

Dr. Eich (*Supplement, Brit. Med. Journal*, October 3, 1891), in the *Therapeutische Monatshefte*, August, 1891, describes this method of treatment, based on some 375 cases, and extending over a period of two years. No real difference was noted in the action of the neutral and basic salts. The drug was used suspended in liquid paraffin in the proportion of 1 in 10. The injections were made into the gluteal region after the skin had been carefully cleansed. The amount of salt injected was 0.1 gramme, and repeated weekly. In the case of the neutral salt the dose was raised to 0.12 or 0.15 gramme, and the injection made twice a week. There were never any unpleasant consequences, and no cumulative action was observed. In most cases there was a slight induration at the site of the puncture, but no redness of the skin, and in only one out of 2,049 injections did a small abscess appear. In this respect the salicylate is superior to other preparations. A slight stomatitis appeared only ten times, but cleansing of the mouth was rigidly enforced during the treatment. On an average seven injections were needed before the symptoms disappeared. With the larger doses the treatment lasted on an average twenty-seven days. The effect of the remedy was prompt, but in a relatively large number of cases there was no result, and other treatment had to be adopted. There was a return of the symptoms in 34 per cent. of the cases, and this occurred earlier and more severely than in those treated in other ways. The author attributes this, as well as the rapid disappearance of the symptoms, to the ready absorption of the drug. These facts have determined Professor Leichenstein to return to the treatment by the oleum cinereum.

Dr. A. Lezius (*Wiener Med. Presse*), on the other hand, speaks very highly of the treatment by injections of salicylate of mercury. He uses liquid vaseline as a vehicle, and injects 1 décigramme of the salt every week. He found that roseola ordinarily disappeared after two injections, papular syphilides and mucous patches of the mouth yielded to three injections, while condylomata of the anal and pubic regions required for their cure four or five injections. Dr. Lezius states that he prefers salicylate of mercury to all the other insoluble mercurial salts; he found it

endowed with remarkable curative properties, at the same time provoking a minimum of local reaction, and presenting no dangers of mercurial poisoning.

**10. Aristol in venereal diseases.**

During the past year much has been written on the treatment of venereal ulcers by aristol, and the conclusion generally arrived at seems to be that it does not compare very favourably with other applications less costly and of a simpler nature.

Dr. Neisser (*Berlin. klin. Wochenschr.*, November, 1890) states that when this substance was applied to soft chancres, the result was absolutely negative; the ulcers did not take on a healthy aspect, but increased, in spite of all the care employed in carrying out the treatment.

Fischella (*La Riforma Medica*, October, 1890) employed aristol in eight cases of patients with some venereal lesion. He came to the conclusion that aristol dried up simple and syphilitic chancres, but not with any marked rapidity. In phagedenic ulcers it had no curative action, and seemed to be almost useless; compared with iodoform, its only advantage was its want of smell, but its efficacy was far less. By reason of its high price, and the absence of any superiority over iodoform and calomel, aristol was certainly not destined to take its place amongst the useful medications in syphilography.

Professor Breda, of Venice (*Revista Veneta di Sc. Med.*, November, 1890), found aristol efficacious in erosive balano-posthitis and venereal ulcers, and considered its action superior to that of iodoform. It possessed in a high degree the power of causing cicatrization of ulcers and other solutions of continuity, but only after the previous destruction of their virulence with caustics.

Dr. Segre, of Milan (*Boll. del Poliambulanz*, October, 1890), concludes that aristol may with advantage be substituted for iodoform, as it possesses all its advantages, and has not the offensive smell or the toxic effect of that drug; he states, however, that it acts best when the virulence of the ulcers has been previously destroyed by caustics.

Dr. Weissblum (*Viertelsschft. f. Derm. u. Syph.*, 1891, Heft i.) applied the drug to a case of rebellious ulcerating gummatous syphilis for three weeks, without any change being observed in the lesions.

**11. Antifebrin in soft and hard chancres.**

Dr. Bazilevitch (*New York Med. Rec.*, March 28th, 1891) recommended the treatment of chancres by freely powdering with antifebrin twice daily. He described a case of Hunterian chancre in a man aged 23, where the ulcer became strikingly



cleaner on the third day of treatment, to completely cicatrise in ten days. In the case of a man aged 36, with a large soft chancre, the sore assumed a healthier appearance on the fourth day; on the seventh day there appeared sound granulations, and healing took place by the beginning of the third week. Similarly good results were also obtained in the case of a woman (æt. 25) with hard chancre of the minor labium and uterine cervix. The advantages claimed for the method were:—

1. The lesions healed with rapidity.
2. The remedy was inexpensive.
3. It was entirely free from odour.
4. Even when used externally in enormous quantities it did not give rise to any toxic or disagreeable phenomena.

#### **12. The treatment of simple chancre.**

Castel (in the *Revue générale de clinique et de thérapeutique*, December, 1890), after pointing out that the danger of this lesion resided in great part in its virulence, and in the facility with which re-inoculation was possible, proceeded to consider the best application for its relief. Having alluded to the fact that Ricord habitually employed the charcoal and sulphuric acid treatment for this purpose, and obtained from its use very extraordinary results, he drew attention to the more recent methods of treating the disease, amongst which was the use of Canquoin's paste (chloride of zinc). Diday and Fournier recommended the employment of a solution of nitrate of silver, and the latter found that the application of a 3 per cent. solution produced very excellent results. The lesions should be dressed with a tampon of absorbent cotton dipped in this solution, and renewed three times a day. With this treatment simple chancre should be cured in from three to six weeks, and it might be advisable to apply not only antiseptic washes but oxygen water, and solutions of chloral or Labarraque's solution. In cases of multiple chancres, if all could not be treated at the same time, it was better not to cauterise any of them, because of the danger of re-infection. Wherever, from the form or seat of a chancre, such as sub-preputial chancres with phimosis, the application must be imperfect, it should not be attempted.

#### **13. The treatment of soft chancres by scraping.**

Dr. N. S. Sheshmintseff (*New York Med. Rec.*, May 16, 1891) reports several cases in the *Rusakaya Meditsina* of soft chancres in which good results were observed to follow the scraping out of the ulcer, and the subsequent application of a powder containing tannic and boric acids, or of a solution of nitrate of silver, ten grains to the ounce. He believes, as the result of these experiments, that scraping of soft chancres, local anæsthesia

having been previously effected, gives better results as regards the rapidity of the cure than any other method hitherto employed. When this is done early enough, it is almost certain, he holds, to prevent the formation of a bubo.

**14. Treatment of gonorrhœa by injections of carbonate of soda.**

M. Castellan (*Revue générale de clinique*, March 4, 1891) first proposed this treatment four years ago, basing it upon the fact that gonorrhœal pus was acid, and that probably the acidity of the discharge and the virulence of the disease were correlative the one to the other. M. Castellan mentioned 33 cases of gonorrhœa cured in twenty days by the employment of injections of a 10 per cent. solution of carbonate of soda. Should this treatment prove successful, the author claimed for it the advantages of being economical, while the drug employed was non-poisonous.

**15. Treatment of gleet by ergotine.**

According to *Le Médecine Moderne*, Jan. 22, 1891, M. Roicki, a Russian practitioner, uses the following solution of ergotine as an injection in cases of gleet. The drug is administered in pill form by the mouth, and by urethral injections simultaneously.

The injections are made up as follows:—

Ergotin	...	...	...	30 centigrammes.
Aq. destillatæ	...	...	...	300 grammes.

That is to say, about 5 grains to 10 ounces of water. It is stated that these injections are well borne, and that the same treatment is applicable to hæmorrhages from either the ureters or the urethra.

**16. The treatment of gonorrhœa by methyl violet (pyoktannin).**

Mr. Frédéric F. Burghard (*Lancet*, May 23, 1891) used methyl violet as an injection in thirty cases of gonorrhœa in various stages of the disease. It was at first prescribed as a 1 in 1,000 watery solution; in two cases of three weeks' duration the discharge was markedly decreased, but there ensued considerable pain on micturition; in other cases the discharge was increased in amount; there was intense scalding, with much induration and tenderness of the corpus spongiosum. In one case there supervened œdema of the prepuce, with acute retention of urine, and thrombosis of the dorsal vein of the penis. Subsequently the strength of the solution was reduced to 1 in 2,000, but this, although it rapidly diminished the amount of the discharge, was found to induce severe scalding on micturition. As the result of his experience of this remedy, Mr. Burghard recommended that it should be commenced in a 1 in 3,000 solution, the strength of



which might be subsequently increased cautiously up to 1 in 1,500, and he considered that it was a useful addition to our list of urethral injections, though by no means unfailing or devoid of irritation in its action.

**17. The abortive treatment of gonorrhœa.**

Professor Diday, of Lyons (*Journal of Cutaneous and Genito-Urinary Diseases*, August, 1891), states that in order to abort an attack of gonorrhœa, it is necessary to commence treatment at the earliest possible moment, and the plan recommended is to use a 5 per cent. solution of nitrate of silver in a small glass syringe, and to introduce into the canal six or seven cubic centimètres of the liquid, or, according to our measurement, about a drachm and three-quarters or two drachms. Having injected this amount, and withdrawn the syringe, the urethra should be closed by applying one finger over the meatus. The liquid should now be pushed from before backwards by pressing the canal with the finger and thumb, until the whole of the spongy portion of the urethra has been subjected to its influence; then, placing the penis in the vertical position, it is necessary, after having opened the meatus, to inject between its two sides some drops of the silver solution, in order to be certain that it has been thoroughly subjected to the action of the caustic. If the pain experienced by the patient be very intense, the liquid is allowed to flow out; but if it can be endured, the fluid should be allowed to remain for two minutes, or even longer.

This rapidly develops an intense irritation of the canal, accompanied by a yellowish discharge, concerning which it is well to forewarn the patient. This discharge continues scarcely twenty-four or forty-eight hours, and then entirely disappears if the abortive injection has succeeded; otherwise it will be succeeded by the ordinary discharge of gonorrhœa.

If there ensue any difficulty in the act of micturition, the patient should be placed in a warm bath, or hot compresses should be applied to the penis, or an injection of oil of sweet almonds should be given; and if these measures fail, it is necessary to draw off the urine by means of a soft gum elastic catheter, very cautiously introduced.

The patient must abstain from coitus or sexual excitement, and bromides and belladonna should be given if nocturnal emissions occur.

If towards the fourth day after the injections the characteristic gonorrhœal discharge is seen to reappear, a new abortive injection should not be tried; it is necessary, in that case, to proceed with the customary anti-blennorrhagic remedies.

### 18. The treatment of gonorrhœal rheumatism.

M. Jullien (*Brit. Med. Journal*, June 13, 1891), in a discussion on the treatment of gonorrhœal rheumatism, at a meeting of the Paris Société de Dermatologie et Syphilographie, said that, having regard to the infectious origin of the disease, he had for the last five years systematically treated it with subcutaneous injections of bichloride of mercury, with extremely satisfactory results.

M. E. Besnier pointed out that joint inflammations of gonorrhœal origin often spontaneously underwent rapid modifications, which made it very difficult to judge of the effect of particular remedies. In his experience, local treatment was the most important therapeutic factor in such cases, and he placed most reliance upon the method of M. Lucas-Championnière, which consisted in touching the parts in a number of places with the point of the cautery, and then wrapping the joint in Vigo's mercurial plaster, with cotton-wool dressings afterwards.

M. du Castel said he had tried mercurial friction in one case without result, while in another case, in which the inflammation was less severe, it had done a great deal of good.

### 19. The treatment of balanitis, by Dr. W. R. Chichester, New York.

Dr. Chichester (*Medical Record*, March 21, 1891), in an article upon this subject, pointed out that in cases of balanitis one of the most potent causes for a continuance of the inflammation was the decomposed accumulation of the sebaceous material exuding from the follicles in the furrow at the base of the glans penis, and he recommended a method of treatment which for the last ten years he had adopted with uniform success. The local application of atropiæ sulph. suspended the functions of the mucous membrane and its glands when directly applied thereto, and this agent, combined with a mild astringent and a deodorant, afforded us a means of absolutely controlling the secretions, while at the same time it met almost all other indications in treating the inflammation. The sedative action of atropia relieved the tenderness of the parts, or, if the pain was very severe, it could be combined with cocaine. Where phimosis existed, a few drops of the solution might be injected between the glans penis and the prepuce with a slender-nozzled syringe, and it would be found that the discharge would either immediately cease, or would be greatly modified, affording a point of diagnostic value in cases where urethral gonorrhœa was simulated.

The subjoined solution was the one habitually prescribed



by the author, but it was, of course, open to any modification that the case suggested :—

R	Atropiæ sulphatis	...	...	...	...	gr. i.
	Zinci sulphatis	...	...	...	...	gr. ii.
	Acidi boracici	...	...	...	...	gr. v.
	Aq. destillatæ	...	...	...	...	ʒi.

To be applied twice or thrice daily with a small brush.

## 20. The abortive treatment of buboes by injections of benzoate of mercury.

Dr. Welander, of Stockholm (*Archiv. für Dermat. und Syph.*, Heft. 3, 1891), employs in the treatment of buboes injections of a saline solution of benzoate of mercury, which are introduced into the interior of the bubo. In 78 cases in which he made use of this therapeutical procedure the result was excellent; in a large majority of the cases the swelling had disappeared on the use of the injections, though in 22 cases the result had not been so successful. The following are the conclusions arrived at by Dr. Welander :—

1. When the bubo is virulent, injections of benzoate of mercury can neither restrain its course nor avert suppuration.
2. When the bubo is the seat of well-marked fluctuation, and when the overlying skin is thin and of a bluish-red colour, the injection can only be useful in hastening the resolution of the neighbouring infiltration; but under these circumstances the bubo should first be incised.
3. When the fluctuation is well marked, but when the skin, although red, is not markedly thinned and is in a satisfactory state of nutrition, it is very probable that after an injection into the neighbouring zone of infiltration, incision will be unnecessary.
4. If there be no fluctuation, or if it be only indistinct, there is every reason to predict that the bubo will be absorbed and will leave no trace behind, even if fluctuation appears some days after the injection, or when some drops of pus emerge at the seat of puncture by the syringe.

Dr. Welander gives the following directions as to the method of preparing the liquid to be injected; two solutions are prepared according to the following formulæ :—

1.	Hydrargyri Oxid. Flav.	...	...	125 grammes.
	Acidi Nitrici	...	...	250 "
	Aquæ destil.	...	...	4000 "
2.	Sodæ Benzoatis	...	...	188 "
	Aquæ destil.	...	...	4000 "

These two solutions are to be slowly mixed, being stirred with a glass rod. An abundant white precipitate is then formed, which

is collected on a linen filter and is then washed with distilled water until the filtrate no longer gives an acid reaction. The dried precipitate forms a white powder, completely insoluble in water, but soluble in a solution of chloride of sodium. This is the benzoate of mercury with which Dr. Welandar prepares the following solution for injection :—

R. Hydrarg. Benzoat.	...	...	...	1 gramme.
Sodii Chloridi	...	...	...	0.3 "
Aq. destil.	...	...	...	100 grammes.

Writing upon the same subject in the *Archiv. für Dermat. und Syph.*, Heft. 1, 1891, Ducrey describes a form of bacterium which he found to be always present in the secretion of soft chancres, but which he was unable to discover in the pus of suppurating buboes. From this he concludes that a bubo is not due to the direct passage of the micro-organisms of the soft chancre along the lymphatics, but to some special product engendered by them and absorbed by the lymphatics. As a safe and effectual means of combating their action he recommends early injection of benzoate of mercury in a one per cent. solution with a half per cent. of chloride of sodium. The skin should first be well washed with a solution of perchloride of mercury, next the benzoate of mercury should be injected in one or two places, then sublimate wool should be applied and kept in position with a pressure bandage. Some pain and tenderness is experienced during the first day or two, but this soon passes off. The infiltration begins to be absorbed, signs of fluctuation being perceptible, till eventually nothing remains but a very slight thickening, in which no pain or tenderness is to be felt. It is seldom necessary to renew the injection, the first being usually successful, even when there are distinct signs of fluctuation present when it is made.

## 21. The treatment of epididymitis.

Dr. G. E. Brewer (*Philadelphia Med. News*, Oct., 1891) read a paper before the American Association of Andrology and Syphilology upon the treatment of epididymitis. He called attention to a method of treatment that he had found very useful in the management of both acute and chronic cases of this disease. The inflamed organ is covered with a thick layer of cotton wool, which is surrounded by a layer of rubber protective tissue extending beyond the wool to the healthy skin of the scrotum; a gauze bandage is next firmly applied, and the whole is kept in place and supported by a suspensory bandage. By this means the heat and moisture retained by the impervious rubber tissue act in the same manner as an ordinary poultice. The relief of pain afforded by



this method of treatment is often strikingly prompt, but its chief advantage lies in the fact of its marked influence in promoting the rapid dissipation of the inflammatory induration, often so difficult to accomplish. Between twenty-five and thirty cases had been treated in the manner indicated with most satisfactory results. In nearly all the relief of the pain was prompt, and in all the absorption of the induration was strikingly apparent.

**22. The treatment of gonorrhœa by the introduction of astringent powders into the urethra.**

Dr. Hanika, of Munich, recommends (*Der ärztliche Praktiker*, No. 11, 1891; *Supplement, Brit. Med. Journal*, July 18, 1891) that gonorrhœa should be treated by filling the urethra with a powder composed of equal parts of tannin, iodoform, and thallin sulphate, and states that in 26 cases in which he has used this method of treatment it never failed to cure the disease in a very short time. The powder is introduced through a metal tube fitted with an obturator, a straight instrument being used when the anterior portion of the urethra only is affected, and a curved one when the posterior portion has to be reached. The application is always to be made immediately after the patient has emptied his bladder. In most of Dr. Hanika's cases the process was repeated only once a day, but the result was more favourable when the applications were made night and morning. Dr. Hanika states that he has by this means often cured the most violent gonorrhœa in a few days.

## THE DISEASES OF WOMEN.

By G. ERNEST HERMAN, M.B., F.R.C.P.,

*Obstetric Physician to the London Hospital; Physician to the British Lying-in Hospital.*

PROGRESS in the diseases of women continues to be most active in their surgical treatment. I take first

### THE OVARIES.

#### 1. Remote recurrence of ovarian tumours.

Audry (*Annales de Gynécologie*, 1890, p. 161) relates a remarkable case in which ovariectomy was performed in 1880. In 1888 a tumour the size of a large fist was discovered adherent to the abdominal wall in the right hypochondrium. In 1890 the skin over this tumour ulcerated, gave way, and a quantity of viscid fluid, like that of ovarian tumours, escaped. Three months after this had happened the tumour was removed. It was found to be of structure exactly like the ovarian tumour. It was attached to liver, bowel, and omentum. A small portion of it had to be left behind as a sort of pedicle. The author thinks this tumour must have grown from a bit of the first tumour broken off in separating adhesions, and left behind. He refers to other cases, and concludes that a small fragment of an ovarian cyst may, after the removal of that cyst, attach itself, live, and grow, just like its mother cyst.

The diseases of the ovaries which do not form large tumours, clinically must be considered along with diseases of the tubes and pelvic peritoneum. I quote first a useful paper on a disease of which we have little exact clinical knowledge, viz.,

#### 2. Abscess of the ovary.

Rheinstein (*Arch. für Gyn.*, Band xxxix.) says that although the diagnosis of "oophoritis" and "peri-oophoritis" is often made, yet these conditions are seldom actually seen. A division, based on morbid anatomy, has been made into the parenchymatous and interstitial forms of oophoritis. The former of these (which occurs in specific fevers, and from the effects of certain poisons) is only of anatomical interest, because its symptoms and signs are unknown. The second form—the interstitial—is extremely rare apart from childbed, and it is impossible to diagnose it with



certainly, its symptoms being masked by those of the local peritonitis which is its invariable accompaniment. Further, every ovary is tender if pressed on hard enough; and, therefore, from mere tenderness on pressure it is not possible to distinguish between an ovary enlarged from interstitial inflammation and one enlarged by new growth but not inflamed. Ovarian abscess is a rare result of puerperal inflammation, and is so difficult to distinguish from abscess of the broad ligament and from pyosalpinx that certainty is impossible, and no diagnosis of this condition can be relied upon unless confirmed by abdominal section. Abscess is a very rare result also of non-*puerperal* inflammation of the ovary. Rheinstein relates a case in which the diseased parts were removed by abdominal section. The abscess wall was so firmly adherent that parts of it could not be removed, but had to be left behind. The tube was thickened, its mucous membrane swollen, and it contained thin, greenish, turbid fluid. The suppurated ovary was about the size of a hen's egg. Before operation the persistent pain, the presence of febrile symptoms, and of a tender swelling within the pelvic cavity, suggested pyosalpinx. The points that were judged to be in favour of an ovarian abscess were these: that the illness had an acute beginning and rapid progress, while pyosalpinx is, as a rule, a chronic disease; that the disease was unilateral, while serous disease of the tubes is usually bilateral. There are few cases of abscess of ovary recorded that are not puerperal. Parametric abscesses are usually different in position; they either bulge down lower into the vagina, or rise higher up into the groin, and they are not so rounded in shape. It is impossible to distinguish suppuration of a previously normal ovary from suppuration of an ovarian dermoid cyst. Nor can suppuration of the ovary be clinically distinguished from an intra-peritoneal abscess, of the wall of which the ovary forms part. Some cases recorded in well-known text-books as examples of ovarian abscess, Rheinstein thinks were instances of hæmatocele—a condition easily diagnosed by its suddenness of onset with signs of anæmia and displacement of uterus. We know very little of the causation of suppuration of the ovary. It mostly arises by extension of inflammation in its neighbourhood, either from the vagina, uterus, and tubes, or from the peritoneum or cellular tissue. It may be a result of hæmorrhage into the ovary. It may be set up by infective material travelling along the blood or lymphatic vessels in cases of septicæmia or pyæmia. Other causes which have been accepted are chills, suppression of menses, and acute gonorrhœa. The effect of suppression of menses, in Rheinstein's opinion, has not been proved, and is hard

to understand, unless it be indirect, the ovarian abscess being secondary to peritonitis. The direct connection of ovarian abscess with gonorrhœa has also not been proved, although there is no doubt that peritonitis may be caused by this disease. In Rheinstein's case, the history rendered gonorrhœa probable. He thinks that the disease in the tube was secondary to that in the ovary; not the ovarian abscess secondary to tubal disease.

*Chronic ovaritis* is sometimes the diagnosis made in cases in which the ovaries are not fixed or greatly enlarged, but simply persistently painful and tender, and the removal of the organ has been often advised and practised for this condition. From this point of view the remarks of Dr. Skene, in the paper to which I next refer, are worth consideration.

Skene (*Boston Med. and Surg. Journal*, 1891, p. 597) describes changes in the ovaries which he thinks indicate chronic ovaritis. He does not bring forward or refer to any sort of evidence that the alterations he describes are the result of inflammation; but his remarks on the question of treatment are important. (The disease of which he is speaking is what West and others call "ovarian pain.") He says "chronic ovaritis does not end fatally, and is self-limited, though often of long duration; the removal of the ovaries is not free from all danger, though all cases properly operated upon have recovered, and it does not in all cases give complete relief. In fact, many of the cases are not much improved, if any; even those who are nearing the menopause, and who bear the loss of the ovaries better than younger subjects, occasionally suffer much from those nervous disturbances which follow an abrupt menopause, and have to endure pelvic pain in the region of the stumps. The clinical history of cases in which the ovaries have been removed does not, in all cases, show great advantage over those in which the ovaries are left to complete the natural history of the disease. Younger subjects do not bear the loss of their ovaries agreeably. Some become fat, indolent, inefficient, and subject to headaches; others are irritable, dyspeptic, and despondent; while but few enjoy good general health and mental vigour. This statement is contrary to much of the published literature, but is closer to the actual facts. The cases cured are those operated on when near the menopause; those who are improved are generally those who have suffered from complicating affections, such as dysmenorrhœa; while the unimproved are the younger subjects, in whom the disease was uncomplicated.

### 3. Tubo-ovarian cyst and allied conditions.

Schramm and Neelsen (*Arch. für Gyn.* Bd. xxxix.) describe fully



two cases of tubo-ovarian cyst. In both cases there was a periodic discharge of fluid through the uterus, followed by diminution in size of the tumour. This they hold to be an important diagnostic sign. It has been recommended, for the purpose of diagnosis, to try and press some fluid from the tumour out through the Fallopian tube into the uterus. They do not recommend this, on account of the risk of rupture of the cyst, and peritonitis; and they think it could be done in hydrosalpinx as well as in a case of tubo-ovarian cyst. In both cases the disease was suspected to have been originally due to gonorrhœa. In one case the symptoms appeared to be aggravated by an attack of influenza from which the patient suffered. (The authors refer to other published cases in which it seemed as if influenza had set up uterine disease.) One of the diagnostic marks by which it has been taught that tubo-ovarian cysts are to be recognised, they do not think is always present: viz., the presence of fimbriæ on the inner surface of the cyst. Their explanation of the origin of tubo-ovarian cysts is a little different from that usually given. They say that in all cases in which the dropsical tube is not distended uniformly into a sausage shape, but is dilated at the outer end only, like a retort, it will be found to be kinked by a valve-like fold of its lining membrane. This kinking is intermittent, its presence or absence depending upon the position of the parts, and the degree of swelling of the mucous membrane. Hence the intermittent discharge from the uterus. Such tumours do not exceed a certain size, because the presence of the retained fluid causes atrophy of the structures which secrete the fluid. Finally, there is thinning of the wall, and rupture of the thinned tube, with effusion of the contents into the peritoneum. If the rupture be near the ovary, adhesions are formed, and a tubo-ovarian cyst is the result. They define a tubo ovarian cyst as a cyst the wall of which is formed partly by the ovary, partly by the tube. The ovary may be simply atrophied, or it may be cystic.

In the next paper I quote, a different view is taken.

#### 4. Ovarian hydrocele.

Bland Sutton (*Brit. Med. Journ.*, 1891, p. 396) describes the different kind of cysts met with in and near the Fallopian tube, as follows:—1. *Hydrosalpinx*: formed by the distended tube only, and quite separate from the ovary. 2. *Tubo-ovarian cyst*. The ovary is replaced by a cyst which communicates with a distended tube. The orifice of communication is an adventitious opening, and does not represent the abdominal ostium of the tube. 3. *Tubo-ovarian abscess*: a tubo-ovarian cyst containing pus. The

cyst wall is usually very thick, and the orifice of communication very small. 4. *Ovarian hydrocele*. The tube opens by its abdominal ostium into a cyst. The ostium is recognised in rare cases by the presence of fimbriæ: more frequently by longitudinal ridges, which emerge from the walls of the tube and radiate over parts of the cyst wall adjacent to the ostium. The ovary is either incorporated in the cyst wall or projects into the cavity of the cyst. Sutton believes that the tumours described as "hydrops tubæ profluens" are really ovarian hydroceles, occasionally discharging their contents through the uterus. In the human female the ovary lies in a shallow recess in the posterior aspect of the meso-salpinx—the ovarian bursa or pouch. This recess varies greatly in depth: sometimes it is small and inconspicuous, sometimes large enough to receive the entire ovary. In the virgin the ampulla of the tube falls over the mouth of this recess and conceals the ovary. This relation of parts is usually disturbed in the first pregnancy. In animals this pouch presents every variation, from a shallow recess to a complete sac, like the tunica vaginalis testis. Just as the tunica vaginalis sometimes contains fluid, which is called "*hydrocele*," and which may even flatten the testicle and make it atrophy, so may this pouch in the female. The fluid may become purulent.

#### 5. Tubal disease.

The *diseases of the tubes* are perhaps those which at the present time most interest gynecologists.

Maury (*Am. J. of Obst.* 1891, p. 1), in a clearly-written paper, puts forth what I may call the new views held by the active school of gynecologists. I quote his paper because it so clearly emphasises the changes in opinion that have taken place. He first refers to the teaching of Bernutz, the purport of which he sums up as follows:—He showed that the disease comprised under the term pelvic exudations, and which had been variously denominated "engorgements of the uterus," "partial chronic metritis," "ovaritis," "peri-uterine phlegmon," "pelvic cellulitis," were not inflammations of the pelvic cellular tissue at all, but the results of a pelvic peritonitis. He showed that pelvic peritonitis was a very common disease, and existed independently of, and unassociated with, cellulitis. These views, however, did not influence opinion and practice as they ought to have done, until the impetus which Mr. Lawson Tait gave to abdominal surgery. He and his followers demonstrated that the cases which had been called chronic cellulitis, and treated as such, were not cellulitis, but were peritonitis; and that among these were cases which, after defying all other treatment for years, were cured promptly by removing



diseased tubes. Dr. Maury says: "Where, I ask, are the evidences of pelvic cellulitis? For the most part outside of obstetric medicine—I say it with respect—they are to be found only in the imagination of the physician; they do not rest upon proof furnished in the dead-house, or upon the equally positive results of abdominal section." "Recurring attacks of pelvic inflammation are not characteristic of, nor do they belong to, cellulitis. They especially mark the existence of pelvic peritonitis, and they mean *leaky tubes*." "It is often impossible to diagnose pus tubes." "My own observation of many cases, for periods of ten and twelve and fifteen years, is that after one attack of pelvic peritonitis relapses are the rule." "I maintain that the time has come when the term cellulitis should be abandoned in connection with non-obstetric pelvic inflammations. It is a misnomer. No such pathological condition is known to exist, unless to a *minor* degree as dependent upon a *major* peritonitis, and its existence then, even if a matter of importance, is impossible of diagnosis." In the foregoing sentences Dr. Maury's pathological views are epitomised. The paragraph I next quote puts the clinical aspect of the question very concisely. "In the class of cases we are now considering, there is tubal disease in its various forms, with or without ovaritis and pelvic peritonitis. As a result of peritonitis there are exudations of lymph, gluing together adjacent structures, thick deposits of false membrane, and in many cases effusion of serum in the interspaces between adhering organs. These inflammatory swellings are very conspicuous on using the bimanual. The non-surgical treatment so long in vogue will often bring about important changes in the diseased structures. The essential features of this treatment are rest, counter-irritation to the pelvic organs, hot sitz baths, with attention to the digestive organs, and especially to the function of the bowels. *Under this treatment large intra-peritoneal exudations are absorbed, and even some tubal and ovarian inflammations entirely disappear, and recovery seems complete.* This, however, is by no means the rule. It is the exception. Complete restoration to health will depend on the condition of the tubes and ovaries. What this condition is, after an attack of inflammation, we are usually unable to discover. . . . Now surgical treatment in most of the cases simply removes the products of peritoneal inflammation. . . . I do not say that all these cases must be subjected to surgical treatment, but I do say that non-surgical treatment does not cure them. It is certainly not contended that every case not thus cured is to be subjected to abdominal section. In the milder forms the patient often lives in comparative comfort, and wisely prefers even to

suffer to a moderate degree rather than undergo operation. . . . The one feature which to my mind affords the strongest evidence in favour of operation is recurring attacks of peritonitis. These certainly mean serious disease of the tubes, which, if held in abeyance for a time, will certainly give trouble in the future."

I believe most who have studied diseases of women will agree with this, except in one point, and that the one of most practical importance, viz., as to whether recovery and permanent fairly good health without operation is the rule or the exception. Many think it is the rule.

Harrison (*Am. J. of Obst.*, 1891, p. 460) opposes Maury's view. He does not, however, adduce any original observations, but dissents from Maury's view chiefly on the ground of the number of gynecologists of high reputation who have thought parametritis common; more recently and particularly Freund, Ziegenspeck, Schlesinger, and Ziegler.

#### 6. Salpingo-oophorectomy.

There is now abundant evidence that diseased Fallopian tubes can be removed, if the operator be competent, with a very low rate of mortality. I quote papers containing statistics which show this. The first one discusses at great length many points of interest, clinical and pathological, concerning tubal disease.

Zweifel (*Arch. für Gyn.*, Band xxxix.) defines salpingo-oophorectomy as the operation which has for its object the removal of diseased tubes, the ovary being removed only if it is diseased or inseparably adherent to the tube. The operation differs from ovariectomy in that a suppurated tube, instead of being stalked and freely movable, is extensively and closely adherent to the surrounding parts. The firmness of the adhesions varies much, and so does the amount of hæmorrhage which follows their separation. Sometimes the adhesions are the result of recent inflammation, and contain innumerable new blood-vessels. These when torn across bleed much but not long, because the vessels contract and the blood coagulates and plugs them. Old adhesions, on the contrary, do not bleed so freely at the time, but the vessels being surrounded by cicatricial tissue, preventing their walls from falling together, the bleeding does not stop. Zweifel, after opening the abdomen, turns the bowels outside, on to the abdominal wall, and wraps them in a warm towel soaked in thymol solution. After separation of the diseased parts by tearing through adhesions, tying and cutting through the pedicle, the most difficult task begins, the stopping of hæmorrhage. This Zweifel accomplishes by tying the bleeding points, which are made visible by turning out the bowels. He has only once used a drainage tube, and



never a chemical styptic. Catgut ligatures, and occasionally a touch with Paquelin's cauterizer, have in his operations always stopped hæmorrhage. Out of 250 laparotomies 71 were cases of salpingo-oophorectomy, and of these all but one recovered. In 39 of the cases pyosalpinx was the condition found; in the others there was a morbid condition of the tube. In all of them there had been perimetritis. In the cases of pyosalpinx the wall of the tubes showed all degrees of thickening and hypertrophy of connective tissue, the mucous membrane all stages of inflammation, shedding of epithelium, and destruction of folds of mucous membrane, the slender delicate processes of the normal lining of the tube being converted into short, thick, club-shaped projections, at places devoid of epithelium. Both mucous membrane and muscular coat were infiltrated with leucocytes.

Zweifel then discusses the question of etiology. Healthy people do not get peritonitis. The oldest and best known cause is childbed. This may be accepted as the cause even if the patient gives no history of shivering or of fever, and has left her bed at the usual time; for often we find elevation of temperature in patients who do not think themselves ill. But if the patient has had no child, or if a long period of health has intervened between the last child and the illness, we must seek for another cause. To-day we laugh at the idea of peritonitis being due to cold: we now call such cases "cryptogenetic." Zweifel believes that the majority of suppurating tubes are effects of gonorrhœa. The inflammation of the tubes comes on insidiously, without fever. The course of salpingitis is different according to the kind of coccus that has brought it about, whether the gonococcus of Neisser, or the streptococcus. The gonococcus is a parasite of mucous membranes. When it invades the tube it produces thin watery pus. It does not produce fever, except indirectly, by producing peritonitis. Cases in which there is great thickening of the tubes and the adjacent peritoneum, Zweifel thinks must, in the present state of our knowledge, be regarded as examples of mixed infection; for there are masses of pus cells far removed from the mucous surface, and more or less infiltrations of small cells throughout the whole thickness of the tube. In gonorrhœal salpingitis he has been struck by the frequency with which it is accompanied with catarrh of the rectum. With one exception, in every case of pyosalpinx Zweifel obtained a history of gonorrhœa in the husband, although in some cases the interval between this gonorrhœa and the disease in the wife was a long one. Gonococci can only be found in the pus in recent cases. When the disease has lasted more than a few weeks pus cells are found, but no cocci. In still older cases

there is only detritus, and the end of pyosalpinx is the fatty degeneration of this detritus and its absorption. The tumour, nevertheless, does not shrink, for the sac remains filled with serum. From clinical observation Prof. Zweifel comes to the following conclusions as to the life-history of the gonococcus: It has only a feeble tenacity of life, and soon perishes in the tissue changes which it produces. The action of phagocytes cannot be accepted as the cause of its destruction, for in abscesses which are opened, such as those in Bartholin's gland, it retains its virulence for an indefinite time. It is only in cavities whence the escape of the pus is prevented that the gonococcus perishes. In the pus of buboes, staphylococci, but no gonococci, are found. Not every case of tubal suppuration is due to the gonococcus. Some are due to a streptococcus. He relates a case. The patient's husband had suffered from gonorrhœa before marriage, but had been medically treated and pronounced cured. The patient had a child fourteen months after marriage, and the puerperium was normal until the fifth week after delivery, when she was suddenly taken ill with all the phenomena of severe general peritonitis. Thirteen weeks afterwards there was a tender lump as big as the fist in the left perimetrium. After some months' delay the diseased parts were removed by operation. The adherent tube and ovary on the left side formed together a fluctuating tumour. On the right side they were adherent, and the ovary was enlarged, but they did not form a large tumour. Yellow thick pus welled up when the separation of the left ovary was begun, different from that seen in gonorrhœal cases. Similar pus escaped from the right ovary. When the pus was examined, streptococci, but no gonococci, were found. On examination of the tube, the folds of mucous membrane, everywhere retaining their epithelium, were seen, unaltered, except for infiltration with leucocytes. In the wall of the tube, irregularly scattered among the muscular bundles, were numerous small abscesses. Here the disease was *disseminated interstitial salpingitis*. The case presented features quite different from those of gonorrhœal pyosalpinx: the sudden onset, the colour and consistence of the pus, the presence of interstitial abscesses in the tube, and of abscesses in the ovaries. In what way the patient became infected with the streptococci is not clear, but the author holds that clinically the disease due to streptococci is distinct from that produced by gonococci. In another case—that of a virgin, in whom the symptoms dated back to an attack of enteric fever four years previously—there was a tumour reaching from the pelvic floor to the umbilicus, to the left of and in front of the uterus. This was found to be the dilated tube,



filled with pus containing streptococci. Before the operation there was severe hectic fever. Here the author thinks the streptococci entered the system through the ulcers in the bowel. In a third case in which streptococci were found in the pus, there was also hectic fever prior to operation. Two other kinds of micro-organisms were found among these cases in the pus of diseased tubes, viz., the tubercle bacillus, and the pneumonia capsule coccus of Fränkel. The latter patient had hectic fever, but no pneumonia. Zweifel quotes from another author who has seen actino-mycosis of the tube. Omitting the last-named rarity, we have four different forms of salpingitis. In those due to streptococci and to the capsule-coccus, true hectic fever was present. In tubercular pyosalpinx fever was occasional. In gonorrhœal pyosalpinx there was no fever so long as the patient was kept quiet in bed, although fever of short duration might follow exertion or rough treatment. Experience must show whether these general statements hold good of all cases. On examination, a lump, in size from that of a hen's egg to that of a fist, is found on one or both sides of the uterus. A limited degree of mobility is, as a rule, present, it being possible to push up the tumour. The tenderness is not so great as that usual in perimetritic exudations. Of all kinds of pyosalpinx the tubercular are the most painful. The tube can be traced up to one corner of the uterus, this being most easily done on the least diseased side. Gonorrhœal pyosalpinx is usually bilateral, but the two sides are seldom affected to the same degree. A nodular thickening of the tube has been described, under the name of *salpingitis nodosa*, as an early stage of salpingitis. Zweifel believes that these nodules are small collections of pus, separated from one another by hour-glass-like constrictions of the tube. Gonorrhœal pyosalpinx is peculiar in the slowness of its tendency to perforation. In the pyosalpinx from streptococci perforation is to be expected. As the tumour develops the tube gets to occupy a position higher up and further back than normal. There is nothing peculiar in the way in which these lumps displace the uterus. As the gonococcus gets to the tubes by way of the uterus, its effects are first manifest in the latter organ, and are evidenced by irregular, profuse, and painful menstruation. It is noteworthy that in none of the cases of pyosalpinx from streptococci or the capsule-coccus was there either irregularity, or excess, or painfulness of the menstrual flow. In gonorrhœal endometritis Zweifel thinks intra-uterine treatment most inadvisable. He has seen danger result from it. Cervical catarrh and erosions were always present, but these conditions are so common that he hesitates to regard them as part of the disease.

There is no way of diagnosing gonorrhœal endometritis from endometritis of other kinds. Gonococci may be present in the vagina even when there is an amount of discharge hardly thought worth mentioning. Redness around the orifices of Bartholin's glands Zweifel does not regard as characteristic of gonorrhœa: he has seen it in so many other conditions. A purulent discharge from these ducts was not present in any one of his cases. A number of his cases had been wrongly diagnosed by others as perityphlitis. He admits that not in every one of his cases was the diagnosis of gonorrhœa perfectly established: but he argues, if there be pyosalpinx, and none of the cocci which bring about suppurations can be found in it, what is there but gonorrhœa that can account for the phenomena? this cause being so common that the inference is unassailable. Zweifel has not been able to demonstrate the gonorrhœal origin of ovarian abscesses. Hematosalpinx and hæmorrhage into the ovary, he thinks, are the results of the great dilatation of the vessels which is seen in salpingo-oophoritis. He therefore holds that gonorrhœa is the cause, directly or indirectly, of most cases of salpingo-oophoritis. The great symptom of these diseases is pain, often of unbearable severity; less when lying, aggravated by exertion. Gonorrhœal pyosalpinx only exceptionally threatens life: but no one can deny the great risk which attends the invasion of the tube by streptococci. Pyosalpinx, with disintegration of tissue (*verjauchts*) occurred 4 times out of 77 cases. Zweifel does not think that a depôt of old gonorrhœal pus offers an especially suitable nidus for the tubercle bacillus. The amount of suffering to which pyosalpinx gives rise depends upon the peculiarities of the individual patient. Perfect health only comes with the menopause. The extirpation of gonorrhœal pyosalpinx is only justifiable when the mortality of the operation has been reduced to a very low figure. In one of Zweifel's cases "salpingotomy" (*i.e.*, opening, emptying, but not removing the tube) was performed, and the patient died. He gives particulars as to sexual feeling in 26 cases: 10 had never experienced it; in 3 it was extinguished; in 3 diminished; and in 10 quite unaffected.

### 7. Dilated fallopian tubes.

Landau (*Arch. für Gyn.*, Band xl., S. 1) has written a long paper on dilated Fallopian tubes, based on clinical observation. He first points out that, for want of a better classification, tubal sacs are divided into hæmato-, hydro-, and pyo-salpinx. But this is not satisfactory, because (1) the kind of contents tells nothing as to the pathogenesis of the disease; (2) there are cases in which the contents cannot be placed under either head; (3) these classes are



not etiologically different. He then gives a systematic account of the morbid anatomy and pathology of tubal disease, which I pass over to come to his clinical observations. As tubal disease is a secondary condition, its full clinical history means the history of all the diseases which may lead up to it. As tubal disease is met with in combination with so many different conditions and of so many different kinds, a clinical history common to all cases cannot be given. One and the same form of tubal disease may present different clinical features; and identical symptoms and signs may be given by all kinds of tubal sacs. As a general rule, double hydrosalpinx is a mild disease when complications are absent, causing only mechanical troubles by the tension and pressure of the sac, more seldom reflex phenomena in remote parts, such as stomach and head, the latter especially in nervous subjects. Pyosalpinx is often seen as an acute uncomplicated disease after abortions or operations on the uterus. There is fever, pain, and the development of a swelling behind and on one side of the uterus. At first there is indistinct fulness in the broad ligament; then the tumour becomes harder and more defined. No doubt many such cases have in earlier times been described as parametritis. The most striking clinical feature is the severe pain. This pain does not depend upon the size of the tumour; indeed, it sometimes gets better as the tumour enlarges. The pain is intermittent. It is not always limited to the situation of the tubes; it radiates to the sacrum and down the thighs. Sometimes it is accompanied with nausea and vomiting. It is not removed by rest. It is aggravated at the menstrual period. The pain is probably caused by contractions of the tube; colic occurring in them as it does in the bowel, gall bladder, and ureter when these canals, which contain involuntary muscle, are stopped up. There may be painful contractions without absolute closure. If the tube is so distended as to paralyse the muscular fibre, then the pain may get better. Pain is less in post-partum salpingitis, because then the tube is softer and more distensible. With salpingitis there is also perimetritis, and hence more or less constant pain beside the tubal colic, and tenderness. The perimetritis may be so severe that its symptoms form the predominant part of the disease in the early stage. Colicky pains may be felt in the hypochondria, and this gives rise to fear of general peritonitis. But the prognosis is not rendered unfavourable by the occurrence of such pains.

*Chronic pyosalpinx* does not always develop out of acute salpingitis, but is sometimes from the beginning chronic, and insidious in onset, especially in cases arising by the extension of

gonorrhœal endometritis. In such cases it is only manifested by purulent discharge and colicky pain. It may end in recovery, or atresia may take place, and the pus, retained in the tubes, cause little or no trouble, and undergo the different changes that have been described. In a number of cases one symptom only is present in well-marked degree. There may be very severe dyspareunia, or great hæmorrhage, or persistent pelvic neuralgia. In a third group the symptoms of pelvic peritonitis are prominent: fever, abdominal pain and distension, nausea, and vomiting. If the disease be on the right side, it may be difficult at first to distinguish it from perityphlitis. In these cases, after the acute attack has passed off, the patient may perfectly recover, and be free from symptoms until another acute attack comes on. There are other cases in which the patients are never free from suffering, even when at rest in bed, and so the general health quickly suffers. The severity of the symptoms in these cases bears no relation to the size of the sac. In some of the cases referred to in the last paragraph, the disturbed function of the alimentary canal is manifested by indigestion, wasting, constipation, flatulence, or even obstruction (this group of diseases being due to adhesion of bowel passing through the pelvis, possibly kinking, compression, or stenosis). Perforation may take place, either into the bowel, into the cellular tissue of the broad ligament (which Landau would call "pyokele peri-uterina") or into the vagina, all which are favourable terminations. Only in some few cases prolonged suppuration may lead to lardaceous disease. In rare cases there is perforation into the peritoneal cavity, and rapid death.

Landau then considers *diagnosis*. One characteristic feature of *hydrosalpinx* is its position, behind the uterus. Ovarian tumours, as they enlarge, tend to rise out of the pelvis. Fallopian tubes, as they grow, get behind the uterus, and, if large, form a sort of elastic cushion behind it, pushing it forward against the symphysis. Other tumours do not give this sense of there being an elastic cushion. It is only in very small tube-sacs that the text-book sign of there being a sulcus between the tube and the uterus is present. Large sacs lie close to the uterus. There is such a sulcus between an ovarian tumour and the uterus. Fluctuation is very seldom felt. *Hydrosalpinx* is very seldom movable. In a few cases the tube contents can be pressed out into the uterus. This has been done by Frankenhauser, and the fluid collected in a speculum. In *pyosalpinx* the signs described in the preceding paragraph are sometimes absent. The fluid may be unable to escape; the wall may be so thick and rigid as not to give the idea of a cushion. In *pyosalpinx* there is usually tubal disease on



both sides. The shape—pear-shaped, sausage-shaped, knotted—is very characteristic ; and this is best made out by rectal examination.

For *differential diagnosis* rectal examination with two fingers is very useful. (Landau does not approve Noeggerath's method of dilating urethra, and examining with finger in urethra.) Tubal pregnancy cysts are not usually so hard as cysts containing pus. Pregnancy in the rudimentary horn of a one-horned uterus springs from the uterus lower down than a tubal sac. In a case seen by Landau the pregnant horn was in front, the other behind. Hæmatometra in one horn of a uterus bicornis may resemble a tube-sac. Here there will be periodical pains. From hæmatocele, pelvic abscess, exudations, etc., tubal sacs are to be distinguished by their being more definitely circumscribed. In some cases, as in very fat women, cases complicated with other pelvic tumours, inflammations, etc., diagnosis may be impossible.

Landau's views as to treatment are somewhat different from those now generally acted on as to *exploratory puncture*. He says:—This has gone out of use, because people now settle doubts by laparotomy. But it does no harm, and by it we can find out whether a tumour be solid or fluid ; and if the latter, what the fluid is. In no kind of tumour is exploratory puncture so useful, for it may sometimes be curative. It will reveal dermoid, or colloid, or echinococcus cysts ; it may be serum, pus, or blood. Chorionic villi may be found. Possibly the tubercle bacillus, the gonococcus, or actino-mykosis might be recognised in the fluid withdrawn.

The mere presence of a tubal sac is never a sufficient indication for its removal. Landau's results are very good : one death out of 52 cases ; but he is now more conservative than he used to be. "We have to do, not with tube-sacs, but with invalids." The reasons for becoming conservative are two : (1) After complete removal of the uterine appendages, cure does not always follow. In some the old pains persist, in others get worse, and new troubles develop as a result of operation : hernias, movable kidney, etc. ; and, later on, nervous troubles, which may be worse than the original disease for which operation was performed. In some the results are brilliant ; but we are not yet in a position to say beforehand whether the results will be improvement or the reverse. The nearer the climacteric, the better the results. (2) Many cases can be cured by milder means.

In simple *hydrosalpinx* spaying is contra-indicated ; and where it is not giving trouble, no treatment is required. By correction of backward displacements if present, and by massage,

the fluid can be got to flow into the uterus. Warm vaginal douches, wet compresses to the abdomen, and sedatives, will relieve pain. The advice of **Frankenhauser**, **Dolérís**, and others in such cases to dilate the cervix with tents, Landau disapproves. If dilatation is needed, he prefers to do it with iodoform gauze; but he does not recommend this in tubal disease. If these measures fail, Landau prefers puncture by the vagina. He has done this often, and found no bad results. He has the tumour pressed down by the hand of an assistant on the abdominal wall. It does so little harm, that he does not even confine the patients to bed. After puncture and emptying he has seen follow, not only disappearance of the symptoms, but disappearance of the tumours. This he has verified by careful inquiry and watching of the patients over a long period of time. But relapse is likely to happen if the tumour is not completely emptied. This may be because the sac is many-chambered. In that case it should be punctured in two or three places. If simple puncture fails to procure disappearance of the sac, Landau injects through the canula a 3 per cent. solution of carbolic acid. He has had good results from this, but as his cases are very few, he has not thought them as yet worth publication. **Bandl's** advice, to leave the canula for some days in the opening, so that the cyst may suppurate, Landau opposes. Landau thinks he has cured tubal gestation in this way; although, when the diagnosis is clear, he thinks laparotomy the better treatment for this condition. If the cyst is in front of uterus, it may be tapped through the abdominal wall—though Landau is opposed to it. If these measures fail, then what remains applies equally to pyosalpinx.

Although *pyosalpinx* sometimes produces no symptoms, yet, as a rule, the symptoms are more severe, and the danger to life greater, than in *hydrosalpinx*. But even here, extirpation is not always necessary. Landau agrees with **Freund** that acute *pyosalpinx* often ends in recovery. But if it does not, then removal of the pus is necessary. This, however, does not involve removal of the tubes. Practically it is necessary to divide cases of *pyosalpinx* into the unilocular and the multilocular. Landau admits that some of the cases which he has taken to be instances of cured *pyosalpinx* may possibly have been parametric abscesses.

The treatment Landau prefers for *pyosalpinx* is incision of the sac from the vagina. By puncture it is not certain that all the pus will be withdrawn. He has the tumour pressed down by the hand of an assistant on the abdominal wall, and then passes in a trocar, without the aid of a speculum, between two fingers. With this as a guide, he makes, with a long-handled knife, an



incision large enough to admit his forefinger. If the sac is adherent in Douglas's pouch he breaks down septa, and any solid masses that may be in the sac, and lets the fluid escape. If it be not adherent, which is more often the case, then, while the wound is plugged with the finger and the tumour pressed down by pressure from above, he seizes with long forceps the wall of the sac and that of the vagina, and clamps them together with the forceps, which are left on from 24 to 48 hours. Thus the sac is shut off from the peritoneum. After removal of the forceps, the sac is treated like an open abscess, washed out with saline solution, and drained with iodoform gauze. Hæmorrhage, in making the incision, is stopped by forceps. The drains are removed in from 8 to 14 days, and for about this time the patient is kept in bed. The result is that the tube fills up by granulation. Out of 300 vaginal incisions (not tube cases only, but abscesses, hæmatocœles, etc.) Landau has only had two deaths, both cases of septic disease following abortion. No case of tube-sac so treated has died. The patients are usually well in about six weeks. If the incision be made with care, important neighbouring organs are not touched. Once Landau wounded the rectum, but succeeded in subsequently closing the wound. Except this, he has had no untoward accident.

If the sac is not in contact with the posterior vaginal wall, but is in front, near the abdominal wall, Landau opens it from the abdomen. He makes an incision either in the middle line, or parallel to Poupart's ligament, punctures the sac, and sucks out its fluid contents; stitches the sac to the incision, then freely opens it, lets out the contents, and drains it with iodoform gauze. In some cases, after opening the abdomen, he has found the tumour so fixed that he could neither bring it up to the abdominal wall nor remove it. He has then pressed it down from above, and opened it from the vagina. This he does not recommend as the best way of treating tube-sacs, but only as one dictated by necessity in certain exceptional cases.

In some cases extirpation by laparotomy is necessary, viz., cases of multilocular pyosalpinx; cases in which there is disease of the ovary, or tubo-ovarian abscesses; cases in which there are troubles due to adhesions. Landau has removed the appendages in 52 cases, with one death.

*Hæmatosalpinx* generally gets well spontaneously. If there be symptoms of suppuration, Landau advises incision from the vagina; if bursting of tubal pregnancy be feared, laparotomy. The principles and details of treatment are otherwise the same as for hydro- and pyosalpinx.

In a discussion in Paris, statistics were adduced which bear

on the two important questions of the *mortality*, the *proportion of cures*, and the *frequency of subsequent accidents*. From this point of view *Duncan's* cases, and the remarks of *Mr. Doran*, are instructive.

*Jacobs*, of Brussels (*Annales de Gyn.*, 1891, p. 291), has operated 58 times, with 4 deaths. He has followed up 31 of the patients. These gave 24 complete cures, 2 relapses, 4 cases followed by "accidents," and 1 by violent pain. *Le Dentu* (Paris) has operated in 34 cases, with one death; in 3 cases persistence of pain. *Terrillen* (Paris) has had 140 cases, with 9 deaths. He has watched the result in 90; 74 have been cured, and in 12 more or less trouble has persisted, 4 of them being still very ill; 4 have died since the operation, from causes which he does not know. *Bouilly* (Paris) has watched 70 cases, and 9 times observed "consecutive accidents." *Segond* (Paris), out of 17 cases, has seen 5 complete cures, 7 imperfect cures, and 5 failures to cure. He also reported 17 cases of *Péan's*, with 16 cures and 1 absolute failure. *Doyen* (Reims) gives 32 laparotomies, with 2 deaths, 3 absolute failures, 7 imperfect cures, and 20 complete cures. He also gives 20 hysterectomies with 1 death, for inflammation of the uterine appendages. He holds that this is the operation which gives the most certain and lasting success.

*Dr. William Duncan* (*Brit. Med. Journal*, 1891, p. 101) gives a table of 30 cases of removal of uterine appendages with 1 death. In subsequently-reported remarks he added 19 others, with 3 deaths (p. 230). In at least three of them the parts were not adherent. The result is only given in such vague phrases as "ultimate recovery good." The author's whole mortality is not stated.

*Doran* (*Brit. Med. Journal*, 1891, p. 106) says: "As a rule, oophorectomy for chronic disease of the appendages is followed by speedy convalescence. Unfortunately a permanent cure is not so frequent. Mental symptoms occasionally follow double oophorectomy. The cases where the stump suppurates are particularly unsatisfactory. Fistulous tracts open, close, and reopen in the abdominal wound for months, discharging their pus. . . A larger minority suffer from a continuance of the pains which preceded the operation, probably on account of intestinal adhesions, or through irremovable inflammatory products which press on nerves."

#### **8. Gonorrhœa and salpingitis.**

*Bantock* (*Brit. Med. Journal*, 1891, p. 749) writes an important paper on this subject. He quotes *Thorburn*, who traced the after-history of a number of marriages; and showed that as to sterility,



abortion, and pelvic inflammation, the difference between a set of wives whose husbands had had gonorrhœa before marriage, and another set whose husbands had not, was quite fractional. He compares also the results of different German investigators who have looked for the gonococcus, shows how their statements differ, and concludes that "the test" (of finding the gonococcus) "is so delicate and complicated that it is practically of little use." He gives his own experience, summed up in the following words: "It is at least a strange fact that I have never seen a case in which I could obtain incontestable confirmatory evidence that a case of salpingitis, pyosalpinx, much less hydrosalpinx, ovaritis, or ovarian abscess, was of gonorrhœal origin, although I take every precaution so that the history of each case of disease of the appendages where I operate should be as complete as possible." He says he has inquired at the Lock hospital, and was informed by the house-surgeon that "he was unaware of a single instance of pelvic disease following gonorrhœa infection." Inquiries of general practitioners also failed to furnish instances. Bantock's general conclusion is that "the importance of gonorrhœa as a cause of pelvic inflammation consists in the fact that in a few or limited number of cases it seems to be capable of producing most serious symptoms, rarely, however, terminating in death, and that this importance is diminished by the fact that these cases are comparatively very rare."

Menge (*Zeitschrift für Geb. und Gyn.*, Band xxi.) quotes Schmitt, who, out of 100 cases of gonorrhœa in the female, found only 5 cases of tubal disease: and Zweifel, who, out of 70 cases of suppurated tubes, found evidence of gonorrhœa only in seven. Menge has investigated 26 cases of suppurated tubes from A. Martin's clinic, and found the gonococcus present only in three.

Other points of interest connected with diseases of the tubes and ovaries are illustrated by the following papers:—

#### **9. Hæmato-salpinx without pregnancy.**

Homans (*Boston Med. and Surg. Journal*, 1891, p. 27) relates a very important and interesting case. A woman aged 23, married 3 years and sterile, was suffering from vaginal hæmorrhage, and signs and symptoms of intra-peritoneal hæmorrhage. Laparotomy was performed. The abdomen was found full of clotted and liquid blood. In each side of the pelvis was a cavity the size of a peach, the walls of which were lined with more or less adherent clot. The uterine appendages on both sides were removed. Each tube was dilated, thickened, convoluted, chronically inflamed, and softened. There was nothing whatever found to suggest tubal pregnancy. The patient recovered.

**Ligature fistulas.**—Dr. Marie B. Werner (*Journal of American Med. Assoc.*, 1890, p. 413) writes on the fistulous escape of ligatures after pelvic operations. She relates two cases of her own, and has collected seventeen others. In most of them the ligature was silk, in some catgut. In all but one, drainage was used. Dr. Werner does not attempt to draw any conclusions as to the way to prevent this sequel; but her table of cases is valuable, as the subject is one on which knowledge is much wanted.

#### 10. Thick-walled tube-cysts.

Bland Sutton (*Brit. Med. Journal*, 1891, p. 398) criticises certain specimens of thick-walled cysts which have been described as dilated Fallopian tubes. He urges that when a tube is dilated, its walls gradually thin; but the uterus becomes thicker. He urges that these supposed thick-walled tubal cysts are really dilated uterine cornua.

#### 11. The nature and treatment of osteo-malacia.

Fehling (*Arch. für Gyn.*, Bd. xxxix.) sums up recent experience as to this disease. He points out that facts show that this disease is not confined to the very poor. It is not due to prolonged lactation, nor to bad nutrition, nor to damp dwellings, nor to sour bread. No changes in the blood have been demonstrated which can explain its origin. It is endemic in certain places; for instance, in the Swiss Canton of Basle. It appears to be connected with ovarian activity. The subjects of it are extraordinarily fertile. No treatment cures it with such certainty as removal of the ovaries. Sterilisation, without removal of the ovaries, has not the same curative influence. After removal of the ovaries, the pains in and tenderness of the limbs, which are marked features of the disease, begin to diminish in a few days. The disease is a tropho-neurosis of the bones, dependent chiefly on the ovarian activity. When we bear in mind the extensive changes throughout the body which the ovarian function brings about at puberty, there is nothing wonderful in this.

A more radical treatment of diseased tubes than either laparotomy or vaginal puncture has been proposed in France, viz.,

#### 12. Removal of the uterus for pelvic suppuration.

Segond (*Annales de Gynécologie*, 1891, p. 161) relates twenty-three cases in which he performed this operation, which was suggested to him by M. Péan. He recommends it for all those cases which it is to-day fashionable to treat by removal of the uterine appendages. The indications for both operations are the same. Dr. Segond holds that as tubal disease generally starts from the uterus, by removing this organ we remove the *fons et origo mali*. He generally removes the uterine appendages as well. In performing



the operation any purulent cavities that exist in the broad ligaments or around the appendages are necessarily broken into and drained through the vaginal wound; and thus complete and radical cure is effected. Of his 23 cases, 4 died, but in each he gives reasons—which to him are satisfactory—for thinking that death did not result from the operation. In removing the uterus, he splits it up into two flaps, which are separately removed. Vessels are secured by Péan's forceps. In applying these forceps, he urges that the operator should make it a rule always to *see* the parts to which he is about to apply pressure forceps. In one of his cases the uterine appendages had already been removed, but the patient was no better, nor was she improved after the uterus had been removed. In the discussion which followed the reading of Dr. Segond's paper at the Société de Chirurgie, his proposals did not find favour with any speaker. In a subsequent discussion (*Annales de Gyn.*, 1891, p. 383) it met with more consideration, and Segond thus sums up his views as to its position: (1) In pelvic suppuration recurring after removal of the appendages by laparotomy, removal of the uterus is the only resource; (2) in cases of pelvic peritonitis with purulent infiltration of the cellular tissue, he thinks it the best course; (3) in suppurated cysts that can be removed, although Segond thinks that removal of the uterus is desirable, opinion was unanimous against it; (4) in non-suppurative salpingo-oophoritis, although everyone else was against removal of the uterus, yet Segond thinks better results may be attained thus than by laparotomy. He thinks the danger is not greater; all the troubles connected with the abdominal cicatrix are avoided, and the cure is more complete.

Some points of interest concerning abdominal operations generally are illustrated by the following papers:—

### **13. Repeated laparotomy in the same subject.**

Desiderius von Velits (*Zeitschrift für Geb. und Gyn.* Bd. xx.) contributes an important paper, based on a collection of 144 cases in which laparotomy has been performed more than once in the same subject. His collection is incomplete, but it is large enough to make his conclusions valuable. The frequency with which a second laparotomy is required, he puts, collecting the statistics of different operators, at from 1 to 3.25 per cent. The mortality of ordinary ovariectomy he takes to be about 5 per cent. The mortality of cases in which a second operation had to be done, he finds amounted to 26.15 per cent. He shows that this high mortality was not due to causes directly connected with the operation, to difficulties in its technique, or to defective antiseptic

conditions. It is due to excessive conservatism in the first operation, leading to incomplete removal of the disease. Putting together statistics from different authors, he estimates the frequency of malignant tumours of the ovary as compared with non-malignant, as from 1 to  $4\frac{1}{2}$  to 1 to 6. The frequency with which malignant (including papillomatous) tumours are bilateral, is, in the experience of different surgeons, from 35 to 75 per cent. The practical conclusion that follows from these figures is, that in order to prevent the necessity of a second operation, we should in any case of removal of a malignant tumour of the ovary, whether solid or papillomatous, remove the other ovary also, even though it may appear healthy.

#### 14. Ventral hernia.

Edebohl's (*Am. J. of Obst.*, 1891, p. 544) advocates the closure of ventral hernia after laparotomy by bringing together the abdominal muscles and fasciæ, without opening the peritoneum. His paper contains a useful summary of the literature concerning this result of abdominal section.

The next subject I take is—

### THE UTERUS.

#### 15. The removal of the uterus for fibroids.

I quote papers illustrating three methods of dealing with the stump: (1) Schroeder's, (2) the elastic ligature, (3) intraperitoneal treatment as practised and recommended in England by Mr. Frederick Treves.

Brennecke (*Zeit. für Geb. und Gyn.*, Band xxi.), writing on Schroeder's method of myotomy, says that in ovariectomy and removal of uterine adnexa he has left the elastic ligature in the abdomen quite a hundred times, and never seen the least ill-effect. He would use it in cases of removal of fibroids in which the uterine cavity was not opened; but he does not recommend it in cases in which supravaginal amputation is performed. He has seen it excite long-continued suppuration. If Schroeder's method of suture in stages (*Etage Naht*) is properly used, the elastic ligature is not required. Other surgeons have modified Schroeder's method in ways which destroy its value, and therefore Brennecke describes it fully. It consists essentially in three things: (1) The application of a temporary elastic ligature round the base of the tumour, and ligature and division of the broad ligaments. There is no difficulty in applying the elastic ligature in the case of growths springing from the top of the uterus and not unfolding the broad ligaments. But in some cases the broad ligaments and the bladder are carried upwards by the growing tumour. In that



case the bladder must be carefully separated, and the broad ligaments tied in several pieces with strong silk, and cut through between the ligatures and the cervix. Then the elastic ligature is applied. In some exceptionally difficult cases this cannot be done. (2) The next thing is to cut off the tumour about two inches above the elastic ligature. Before completing this, the elastic ligature should be joined by a stitch to the stump, before and behind. This prevents it from slipping, and gives a hold by which the stump can be pulled up. The stump is then so trimmed that it forms two flaps, which come together quite easily without tension. (3) Then comes the sewing of these flaps together. This is done by several rows of catgut stitches—according to circumstances there may be 4, 5, or 6 rows of stitches—so as to accurately bring together the whole surfaces of the two flaps. When this is done, the elastic ligature is removed. If the suturing has been properly done, there will be no hæmorrhage, but the stump will become of a rosy colour, showing that the circulation through it is free. No other mode of treatment, says Brennecke, gives such security against hæmorrhage. The better the blood supply to the stump, the more certain is the prevention of septic processes in it.

Dr. Brennecke thinks the ligature of the uterine artery superfluous if this suture of the stump is properly done: he says that a surgeon does not think it necessary to ligature the main artery of a limb high up because he has amputated lower down. The edges of the divided broad ligament are stitched to the stump. This proceeding is a very tedious one. Brennecke reckons at least two hours for such an operation; but he thinks its advantages counterbalance the dangers of prolonged narcosis. He applied with Playfair's probe strong carbolic acid to the cervical canal. This he thinks better than the actual cautery, which leaves a slough of dead tissue. He gives a list of twenty-two cases with only one death, the fatal case being one in which the pedicle was treated by the extra-peritoneal method; in the others, Schroeder's method was used. In three of them the elastic ligature was left in the abdomen, in the others not. He urges strongly the advantages of suture in stages of the abdominal wound, *i.e.* one row of stitches uniting the peritoneum, another the muscles, and another the skin. He estimates the frequency of ventral hernia after the ordinary mode of closing the abdominal wall (interrupted sutures through its whole thickness) at 30 per cent., but after suture in stages at 4 per cent.

**16. The treatment of the pedicle in hysterectomy by the elastic ligature.**

Richelot (*Annales de Gynécologie*, 1890, p. 247) advocates the

elastic ligature—either a solid cord of indiarubber or a piece of indiarubber tubing—for the intra-peritoneal treatment of the pedicle. He applies the ligature, and holds it with forceps. Then he cuts away the tumour. The ligature is then tightened, if needful, and the ends secured by sewing with silk. Care must be taken not to include the bladder in the ligature, an accident which can be avoided by putting a sound in the bladder. To prevent the ligature from slipping, Richelot secures it to the broad ligament by a silk suture. He then destroys the mucous membrane of the uterus in the stump by plunging the thermo-cautery into the canal, and then cauterising the surface of the stump. It is then dropped into the abdomen. To prevent bowel getting adherent, Richelot places the omentum in contact with the stump. Then the abdomen is closed. Generally the ligature becomes encysted. Sometimes it comes away per vaginam. He has treated 13 cases in this way, with three deaths. Neither of the deaths could be traced to the mode of treatment of the pedicle.

#### **17. Intra-peritoneal treatment.**

Mr. H. N. M. Milton (*Lancet*, 1890, vol. ii., p. 1155) relates four cases of hysterectomy treated as follows. The method is based on the fact that the arteries and veins of the normal uterus are easy to find and ligature. After opening the abdomen, the broad ligaments were each tied in two pieces with silk, outside the ovary. Then an incision was made with scissors in the anterior peritoneal covering of the uterus, passing from one side of the uterus, at about the point where the cervix expanded into the enlarged body, across the front of the uterus, one inch and a half above the vesico-uterine fold to a corresponding point on the opposite side. The flap of peritoneum thus made was detached with the greatest ease from the uterus with the handle of the dissecting forceps and turned down for about two inches, carrying with it the bladder. During this part of the operation two or three oozing points were seized with artery forceps. A similar posterior flap was turned down (not quite so easily as the anterior one, the peritoneum being thicker and more closely adherent), and the peritoneum covering the cervix laterally was also easily detached for about half an inch on either side. The tissues on either side of the cervix, containing the uterine arteries and veins, were then seized in two places with artery forceps outside the reflected peritoneum, and snipped through. The uterus was then slowly snipped across just below the point where the cervix expanded into the enlarged body. An assistant stood by ready to pick up any spouting vessels, but his services were not required. After the removal of the uterus, the



mucous membrane of the cervix tended to evert, and to obviate this a wedge-shaped fragment was snipped out of the centre of the cervix, and the two lips thus formed roughly united with a couple of catgut stitches. All vessels held in the artery forceps were then tied with medium-sized catgut, and the peritoneal flaps united with a continuous catgut suture over the stump, the line of union extending from the point of ligature of one broad ligament to that of the other. After sponging, the aspect of the peritoneum was strikingly perfect—all one saw was a dry glistening surface with a narrow line of union passing across the pelvis. The abdominal wound was then closed. All the patients recovered.

Bétrix (*Annales de Gyn.*, 1890, p. 275) calls attention to an identical mode of treating the pedicle in hysterectomy recommended by Prof. Kocher, of Berne. This consists in tying the pedicle with silk, after having first tied the broad ligaments, taking care to include the uterine artery in the ligature.

Dr. S. Ascher gives an account of the operations for myoma of the uterus performed in Hamburg by Dr. Prochownick. They comprise ten cases in which the abdomen was opened and the tumour enucleated, with one death from hæmorrhage, and fifteen treated by hysterectomy, with five deaths. In five cases the pedicle was treated by the extra-peritoneal method, with two deaths; in the others by the intra-peritoneal method of Schroeder. One case is so remarkable that I refer to it more fully. The patient went on well till the eighth day. Then she was given castor oil. This produced such meteorism that the abdominal wall, from which the stitches had been removed the day before, burst open. It was promptly again sutured. Two hours after the bowels acted. In the night, flatus and fæces came away *through the vagina*. This continued for four days. With the speculum it could be seen that the fæces passed through the cervix uteri. After this the bowels acted properly, and the discharge through the cervix diminished and ceased. Dr. Ascher supposes that hæmorrhage from the stump made the sutures in it give way and the wound gape, and then bowel became adherent to it and a perforation formed.

A method of getting at the parts within the pelvis that has been practised with apparently satisfactory results abroad is referred to in the following papers. I am not aware that it has found a trial in this country.

Delbet (*Annales de Gyn.*, 1890, p. 373), writing on the plan of getting at pelvic tumours, abscesses, diseased tubes, etc., by cutting between the sacrum and ischium, and removing, if necessary, the

coccyx and part of the sacrum, or "posterior laparotomy," as he terms it, says "it is impossible for those who have never either done this operation or seen it done to imagine what daylight it gives. One arrives on the spot. The utero-ovarian vessels and the broad ligaments are under one's eyes and fingers. One need not, as in abdominal section, tie them *en masse*, but take them, so to speak, in the open air, tying each bleeding point separately."

Terrier (*Annales de Gyn.*, 1891, p. 310) relates two cases of extirpation of the uterus by the sacral method. His conclusion is that this operation is only suited for exceptional cases. The vaginal method remains the one to be chosen. The sacral method is difficult, and the ureter is liable to be injured.

I refer next to what I think may be called a surgical triumph.

Pawlik (*Am. J. of Obst.*, 1890, p. 1141) exhibited at the International Medical Congress a case in which he had performed total extirpation of the bladder. The patient, age 40, began to suffer in June, 1888, from hæmaturia, the cause of which was a pedunculated papilloma of the bladder, which Pawlik removed after making an artificial vesico-vaginal fistula. A year later very numerous relapses occurred, which were malignant in character, and therefore required a radical operation. In order to be able to remove the entire bladder, Pawlik proceeded as follows: He first conducted the ureters into the vagina by sounding them in the manner recommended by him, dissecting them out, splitting them, and stitching them to the vaginal wall. The second step of the operation, after the lapse of some time, was the extirpation of the bladder. An incision was made above the symphysis without opening the peritoneum, then the entire bladder was shelled out from the cellular tissue as far as the urethra without the use of cutting instruments. The cavity left was stuffed with iodoform gauze. The operation was then continued from the vagina, whose anterior wall was divided transversely, and the rest of the bladder cut off from the urethra. After this the anterior vaginal wall was stitched to the anterior margin of the urethra, the posterior wall to the posterior margin, thus making the urethra terminate in the vagina. This suture did not heal completely. In a following operation, therefore, the closure of the vulva was made in a longitudinal direction. At present it is closed with the exception of a small fistula. The patient was presented, to demonstrate the results of this hazardous operation.

The **operative treatment of uterine displacements** finds more favour abroad than in this country, as will be seen from the following.



**18. Hystero-pexy, or suspension of the uterus to the abdominal wall.**

Delagénière (*Annales de Gyn.*, 1890, p. 447), who bases his views chiefly upon a thesis by Baudouin, in which are collected eleven cases of this operation for prolapse, and seventy-eight for retro-deviations, rightly says, "The point in dispute which most occupies surgeons is the question of the solidity and permanence of the adhesions created." Among the cases above-mentioned there was one death. The operation was unsuccessful in two of the cases in which it was done for prolapse, and in eight of those in which it was done for backward displacement. Delagénière thinks that hystero-pexy is insufficient in prolapse, unless combined with restoration of the perineum. His paper contains a full account of the various ways in which the stitches, by which the uterus is fixed to the abdominal wall, are put in by different surgeons.

Dr. A. Palmer Dudley (*Am. J. of Obst.*, 1890, p. 1336) relates his experience of ventro-fixation of the uterus. He has done it six times. In three of the six the ligature formed a sinus. In two he performed a second operation, and he found the uterus, instead of being fixed to the abdominal wall, separated from it by at least two inches, the intervening space between the uterus and its old seat of attachment being occupied by intestines glued together and firmly attached to the uterus and abdominal walls. He has since devised a new operation, which consists in sewing the antero-lateral parts of the broad ligaments to the uterus, in this way shortening the round ligaments by pulling them inwards towards one another in front of the uterus. He has done this four times, but the cases have as yet only been watched a few months.

Flaischlen (*Zeitschrift für Geb. und Gyn.*, Band xxii.) relates twelve cases of ventro-fixation of the uterus. The method adopted was the simplest of all, viz., sewing the uterus to the abdominal wall with three silk sutures. All the patients got well without any bad symptoms. The earliest of them was only done two years ago, so that they cannot be said to prove the permanence of the result; but some at least show that benefit extending over two years may follow.

M. Säger (*Cent. für Gyn.*, 1891, s. 317) says of ventro-fixation of the retroverted uterus, that it not only most certainly removes retro-deviation of the uterus, and the troubles therewith connected, for ever relieving the patient of the need for a pessary; but it does not hinder conception, nor interfere with pregnancy or labour, and its effects continue after the puerperium. It must

in the future take its due place among other means of treating retroflexion of the uterus. Leopold confirms Säger's statement as to the absence of injurious influence on pregnancy and labour.

### 19. Vaginal fixation of retro-displaced uteri.

There are still some who think antelexion is a disease. They will not view with approval an operation devised by Schücking, and, with modifications, recommended by Zweifel (*Cent. für Gyn.*, 1890, s. 689), and by which, to cure retro-deviation of the uterus, the organ is sewn into a position of acute antelexion. An incision is made into the anterior vaginal wall, the bladder is separated from the uterus, and held out of the way, and then a curved needle is passed into the uterus, by which ligatures are carried in such a manner as to secure the fundus uteri in the anterior vaginal cul-de-sac. The operation is as yet too recent for its results to be fully recorded.

Rühl (*Cent. für Gyn.*, 1890, s. 916) relates four cases treated by Schücking's operation. All the cases were improved as to their symptoms, but in none was the uterus brought into the axis of the pelvic inlet. He points out the danger of wounding the bladder, the bowel, or large blood-vessels in this operation.

Schücking (*Cent. für Gyn.*, 1891, s. 251) says that by himself and others this operation has been done 217 times; 88 of these have been observed long enough to justify a statement as to the result, and of these 84 are cured; 9 of them have become pregnant and been naturally delivered, none have aborted. In another paper (s. 394) he says that 23 out of the 217 have become pregnant.

### 20. Alexander's operation.

Edebohls (*New York Med. Journal*, 1890, p. 400) describes "a modified Alexander-Adams operation." The only important novelty in it is the method of drainage. This is effected by "three or four strands of silkworm gut running along the bottom of the wound along its entire course and emerging at either end." Edebohls takes care "that these silkworm-gut drains reach into the inguinal canal at one point by passing them beneath the deepest portion of one of the wound sutures." The wound is left undisturbed (unless some wound complication occur) for from 9 to 12 days, then the drains are removed, and the wound is re-dressed.

### 21. Pregnancy and parturition after Alexander's operation.

Dr. Alexander (*Brit. Med. Journal*, 1891, p. 348) writes on the effect of pregnancy and parturition on the result of his operation of shortening the round ligaments. He relates seven cases in



which pregnancy followed the operation and went to term. In three of them the position of the uterus was ascertained some time subsequent to the operation and found to be normal. He concludes, therefore, that the operation does not prevent pregnancy or interfere with its natural course, nor does the displacement tend to recur after delivery.

Herrick (*Am. Journal of Obst.*, 1891, p. 314) re-describes an operation devised and first practised by himself, and described in 1883, for curing retroversion or retroflexion of the uterus by shortening the utero-sacral ligaments. The operation is difficult to describe concisely, and I must refer those curious about it to Dr. Herrick's paper.

## 22. Uterine fibroids.

The treatment of fibroids by spaying and by electricity is still debated, Mr. Lawson Tait and Dr. Thomas Keith being the representative exponents of the two modes.

Tait (*Brit. Med. Journal*, 1890, p. 1005), writing on the surgical treatment of uterine myoma, says he has removed the appendages in 327 cases, with 6 deaths. The mortality he therefore says is 1·8 per cent. This, however, is a misleading statement, because prior to the date from which Mr. Tait reckons his cases his mortality was very much higher. He defends it on the ground that before the date at which the run of successful cases began, his mortality was that of inexperience. But surely on this principle anyone might find some reason for eliminating all his deaths, and represent his mortality as nil. The only way of conveying an accurate impression as to the facts is to give them all, without reserve.

Mr. Tait says that after this operation cure begins at once, and in 90 per cent. is complete within 6 months. In about 6 per cent. it is protracted over periods of from 1 to 3 years. In only about 1½ per cent. is there absolute failure. Details are not given, but they are promised.

Dr. Thomas Keith (*Brit. Med. Journal*, 1891, p. 337), writing on the treatment of uterine fibroids by electricity, concludes his remarks as follows:—"This treatment *almost always* relieves pain. It *almost always* brings about diminution of the tumour—sometimes rapidly. It *almost always* stops hæmorrhage—sometimes rapidly. The results are *almost always* permanent, and the growth of the tumour, if it be not lessened, is stopped. The general health is immensely improved. By *almost always* I mean nineteen cases out of every twenty."

Papers too numerous to quote individually have been published to illustrate the value of electricity for uterine fibroids. They all

consist of reports of cases in which such improvement as appeared to follow is ascribed to the electrical treatment, without any apparent consciousness on the part of the writers of the many fallacies that make it difficult to arrive at a correct conclusion as to the effect of treatment. By far the most important document bearing on the question is the work of Dr. Thomas Keith and Mr. Skene Keith. This book has been exhaustively examined in a most able review by Dr. Stuart Nairne, published in the *Provincial Medical and Surgical Journal*, January, February, and March, 1891. Space only allows me to quote the reviewer's summary of the cases reported in the book. They are 106 in number. Dr. Nairne classifies them as follows:—

Died ... ..	5
Got worse ... ..	3
Not improved ... ..	4
No satisfactory report ... ..	16
Treated for too short a time ... ..	16
	<hr/>
	44

Of the remainder, 28 were under 40, 34 over that age. As to the latter, the influence of the climacteric must be taken into account. The results are as follows:—

#### UNDER 40.

Bad results ... ..	10
Indifferent results ... ..	6
Good results ... ..	12
	<hr/>
	28

#### OVER 40.

Bad results ... ..	11
Indifferent results ... ..	7
Good results ... ..	16
	<hr/>
	34

So that of the whole 106 we have good results in 28, indifferent results in 13, bad results in 21, and extremely bad results in 44, including the deaths.

These results seem to me distinctly inferior to those obtained by ergot. The drug gives a larger proportion benefited, and can scarcely be accused of producing death. I have found no bad results from ergot, even when taken continuously for periods of from 6 to 18 months.

Those interested in the question should read Dr. Keith's book with the help of Dr. Nairne's review.



### 23. The effect of galvanism on the uterus.

Prochownick and Spaeth have made experiments on the dead and also on the living uterus (the latter in cases in which total extirpation was about to be performed), to observe what the actual effect of a galvanic current on the uterus is. The current was sent through the uterus in the same manner as is recommended for the treatment of disease, and then, after removal, the uterus was examined, to see what the current had done. The following are the conclusions arrived at:—(1) The effect of the intra-uterine application of the galvanic current consists in bringing about a "coagulation-necrosis." (2) With currents of equal intensity and duration, the effect of the anode, as estimated by the depth of the slough produced, is greater than that of the cathode. Any effect on the deeper tissues of the uterus is quite insignificant as compared with that on the mucous membranes. (3) Other things being equal, the effect of a platinum pole is greatest, next carbon, then copper. (4) The ultimate effect of many applications of the anode is the formation of cicatricial tissue in the uterine mucous membrane with disappearance of its epithelial elements. (5) In further use of the galvanic current its permanent effect must not be left out of consideration.

### 24. Primary sarcoma of cervix uteri.

Kleinschmidt (*Arch. für Gyn.*, Band xxxix.) says that sarcoma occurs in the uterus in two forms: a mucous, and a muscular. The muscular or interstitial form, the so-called fibro-sarcoma, can be divided, like fibroids, into submucous, interstitial, and subserous growths. It is mostly a round-celled sarcoma, seldom showing myxomatous degeneration; in a few cases there are spindle-cells. It may grow out of a fibro-myoma, and such cases have been described as recurrent fibroid; but sometimes it arises from the connective tissue, without the presence of any pre-existing fibroid.

The mucous form takes its origin from the interglandular tissue of the mucous membrane. It may be diffuse, resembling fungous endometritis, or it may be a polypoid growth. These different forms are not sharply defined the one from the other, and they may be combined. Both fibro-sarcoma, and fibroids undergoing sarcomatous degeneration, may occur in the cervix uteri. These growths present at first the symptoms and physical signs of ordinary fibroids, and are only to be distinguished from these latter innocent growths by their course. The mucous form may grow from the mucous membrane of the cervical canal, and look very like a cancerous tumour. The fibroid form may also in an advanced stage sprout from the lips of the cervix in such a way as to resemble the papillary growths of cancer. Lastly, there is a

form of sarcoma of the mucous membrane in which the out-growths become œdematous, and get to have much the aspect of a myxomatous chorion. Dr. Kleinschmidt relates a case. The patient complained of hæmorrhage, fœtid discharge, and sacral pain. The growth was scraped away. She became pregnant, and the disease returned. Eighteen months after the first operation she was naturally delivered. Ten weeks after delivery there was a tumour as big as an orange filling the vagina; and a lump as big as a pigeon's egg in the parametrium. The cervical growth was cut and burnt away. Two months afterwards symptoms returned, and a tumour was found as big as before. It was again removed. The termination of the case is not related. The growth was a spindle-celled sarcoma, showing in some parts structure which reminded one of cancer. Remarking on the disease in general, Dr. Kleinschmidt expresses the opinion, supported by a somewhat small collection of cases, that, as compared with cancer, sarcoma is relatively more frequent in nulliparæ. Hæmorrhage, leucorrhœa, and pain are the chief symptoms, but the pain is not usually severe until the growth gets large enough to produce pressure symptoms. The tendency to recur is characteristic; and the recurrent growths grow faster than the primary ones. Metastases occur. The diagnosis can only be made by microscopic examination; but there are some features suggestive of sarcoma. The tumour has somewhat the aspect of smoked salmon, and gives to the touch a sensation as if it contained sago grains. It grows rapidly, and after removal soon recurs. Although it may grow from the cervix and form a tumour filling the vagina, yet the vaginal wall will only be to a small extent involved in the growth. Cancer forming a tumour of such size would invade the vaginal wall more extensively. The prognosis, Kleinschmidt thinks, is even worse than in cancer, for even after total extirpation of the uterus speedy recurrence is probable. Removal of the growth as far as possible is always indicated, for it usually gives striking relief to symptoms.

**25. The condition of the mucous membrane of the body of the uterus in cancer of the cervix.**

In the *Centralblatt für Gynakologie*, 1890, will be found a rather angry discussion upon some papers by Landau and Abel. These authors asserted that in cancer of the cervix they had found "sarcomatous degeneration" of the mucous membrane of the body of the uterus. Their interpretation of what they saw has been denied by Hofmeier and others. Dr. Julius Elischer (*Zeit. für Geb. und Gyn.*, Bd. xxii.) has investigated the question for himself. From the examination of eight specimens, he comes to the



following conclusions :—(1) That in cancer of the portio vaginalis, pathological changes are found in the mucous membrane of the uterine body, which may be interpreted as either dependent upon metastases, or as chronic inflammatory disease. (2) Although his cases were of various forms of cancer, yet in no case did he find sarcomatous growth in the body of the uterus. (3) The changes in the mucous membrane are distinctive enough for us to rely upon the examination of a small piece for the purpose of diagnosis, and such examination may justify the early removal of the whole uterus.

#### **26. Metritis desiccans.**

Garrigues (*Arch. für Gyn.*, Band xxviii.) publishes two cases of the kind to which he has applied the above name. Whether such cases are distinct enough in their nature to call for a distinguishing name may be questioned. They are, briefly, cases of vaginitis and endometritis occurring in childbed, due to the entrance of micro-organisms, the endometritis extending into the muscular tissue, and producing sloughing, casting off, and expulsion, of a part of the muscular wall. Such cases ought to be prevented by the use of antiseptics at the time of labour. They deserve attention, because the expulsion of such a mass might puzzle the practitioner as to its nature; but I doubt whether there is any essential difference between cases of puerperal endometritis and metritis without sloughing and those with sloughing, except the greater severity of the latter. At least, none has been shown.

#### **27. Endometritis in acute disease.**

Dr. Massin (*Arch. für Gyn.*, Band xl.), who is assistant in the clinic of Prof. Slavjansky at St. Petersburg, gives a summary of the literature relating to endometritis in acute disease. Slavjansky described endometritis in cholera, but Queirel, a French investigator, failed to find such changes; hence Massin's investigation. He has examined the uterus in 18 cases of acute disease: 12 of relapsing fever, 2 of croupous pneumonia, 2 of enteric fever, 1 of dysentery, and 1 of peritonitis of undiscovered origin. In all cases he found morbid changes, viz., hyperæmia, exudation of leucocytes, cloudy swelling of glandular epithelium. He therefore thinks that acute febrile diseases must be held answerable for the origin of some diseases of the uterus.

#### **28. The danger of curetting.**

Winter (*Zeit. für Geb. und Gyn.*, Bd. xxi.) relates a case in which the curette was pushed through the uterus. Copious intra-peritoneal hæmorrhage was the result. Winter opened the abdomen, removed the uterus, and the patient recovered.

### 29. Hæmophilia at the menstrual period.

The *Boston Med. and Surgical Journal* contains cases related by Townsend (p. 516), Vickery (p. 520), and Tinkham (p. 525), in which dangerous hæmorrhage at the menstrual period, so great as to render the patient almost moribund, occurred in patients the subjects of hæmophilia.

### 30. Dysmenorrhœa.

Champneys (*Lancet*, 1891, and republished in book form) delivered the Harveian lectures on painful menstruation. He recognises two forms of dysmenorrhœa: the membranous, and the spasmodic. (1) As to membranous dysmenorrhœa. He recommends guaiacum; sulphur; antipyrin, combined with a diffusible stimulant; castor. He would also try dilatation of the uterus, followed by scraping with an irrigating curette flushed with an antiseptic solution, practised shortly before a menstrual period. Division of the cervix he rejects. Removal of the uterine appendages cannot be relied upon to cure this disease. (2) As to spasmodic dysmenorrhœa. In the intervals, exercise, saline aperients, simple and wholesome diet; in fact, observance of the laws of health. Pessaries should not be used. Incision of the os externum is useless; of the os internum sometimes useful, but dangerous. Guaiacum is sometimes useful. Tr. Castorei  $\eta$  xx — xxx, three or four times daily during the pain, with or without a few drops of Tr. nucis vom., is sometimes successful. A hot foot-bath and glass of hot gin-and-water is an old and valuable remedy. Ergot is sometimes useful. The last resort is dilatation. It is best done at one sitting, under anæsthesia, and with full antiseptic precautions. But nothing definite can be promised even from dilatation. The best time is midway between the periods. The canal should be stretched, but the dilatation should not be pushed with the object of procuring its enlargement. The lectures contain a full account of the pathology, diagnosis, etc., besides the hints on treatment here briefly summarised.

### 31. Ozone and fertility.

Dr. Samuel S. Wallian (*New York Med. Journal*, 1891, vol. ii., p. 101) makes some statements which, if correct, are important. He says that at Trincomalee, in Ceylon, from May to September the south-west monsoon blows over the island, and in passing through the jungle gets robbed of its ozone. From October to April the north-east monsoon blows over the Bay of Bengal and arrives at the village laden with ozone. From May to September the ozone was 2.5, and the number of conceptions 57; from October to April the ozone was 8, the number of conceptions 100. The Malagash negroes breathe a scantily ozonised air, and are



noted for their want of fecundity; while on the east coast of Central America, and on the north side of Cuba and Jamaica, where the atmosphere is nearly always highly ozonised, large families and multiple births are quite the rule. He thinks that there is no doubt that the free use of active oxygen has a marked influence over the procreative function. Patients who have regularly inhaled the artificially prepared gas for some weeks or months, for various ailments, have almost invariably found themselves gradually recovering lost sexual tone to a decided degree. Numerous observers have corroborated each other on this point, and in nearly every instance the results noted have been wholly unanticipated. Cases of sterility have under its use recovered, and impotence of long standing has given place to a fair degree of virility. A physician of Dr. Wallian's acquaintance, who has made extensive use of active oxygen in his practice, declares that he has but one objection to its use, which is, that it invariably arouses the sexual appetites of those patients who persist in its use for any considerable time.

### 32. Vaginitis with gas cysts.

Herman (*Lancet*, vol. i., 1891, p. 1252) has related a case (the first published in England) of the curious disease known on the Continent as "emphysematous vaginitis," the vagina being studded with tense vesicles containing gas. He does not think it due to any change at all allied to emphysema, but rather a result of follicular vaginitis, the gas being produced by decomposition of secretions in the inflamed glandular follicles. Puncture of the cysts, and liberation of the gas, is usually followed by their disappearance.

Gustav Klein (*Cent. für Gyn.*, 1891, s. 641) describes a case in which he found a bacillus like one found by Eisenlohr in this disease, and believed by him to be its cause.

### 33. Prolapse of the mucous membrane of the urethra.

Kleinwächter (*Zeit. für Geb. und Gyn.*, Bd. xxii.) gives a very full account of this affection, based upon a collection of fifty-five published cases. The following is a summary of his views:—  
 1. It is not so rare as is supposed. 2. Its etiology is very imperfectly known, but it is certain that it is largely conditioned by age. 3. Children most frequently suffer from it, probably on account of the topographical relations of the urethra and bladder in children. 4. Next to children, it occurs most often in old women past the menopause, and is therefore a change probably favoured by senile involution. 5. Women during the period of sexual activity seldom suffer from it. 6. It requires different treat-

ment according to the place at which the separation of the mucous membrane from the submucous tissue begins. 7. If the separation of the mucous membrane has taken place over the anterior part of the urethra, it is enough to cut off with knife or scissors the protruded mucous membrane and suture together the cut edges. 8. If the detachment is higher up, the case is no longer one of simple prolapse, but is inversion with prolapse. This condition requires that, as proposed by Emmett, the urethra be opened higher up and the prolapse pulled up through the wound, and sutured in its proper position. 9. Injury may result from cutting away the protrusion regardless of its mode of origin. 10. To tie the protrusion is opposed to every principle of antiseptic surgery.

[After cutting off the protrusion, it seems to me unnecessary and, indeed, injurious to suture together the edges of mucous membrane, for such suturing prevents the retraction of the mucous membrane which will take place when it is freed from the protruded part, which is held down by the meatus surrounding it at its base. The condition described in par. 8 is inversion of the bladder, and Emmett's buttonholing operation will hardly cure this.]



## MIDWIFERY.

By M. HANDFIELD-JONES, M.D. Lond.,

*Obstetric Physician to Out-Patients and Joint-Lecturer on Midwifery and Diseases of Women to St. Mary's Hospital; Physician to Out-Patients at the British Lying-in Hospital, etc.*

DURING the past year no great advance has been made in any section of this science, but much careful work has been done in investigating the correctness of accepted truths, and in confirming or replacing probable theories by pathological facts. It is on the side of puerperal eclampsia and tubal gestation that this work is especially worthy of notice. Owing to the greatly-improved results gained in delivering by abdominal section, there is a decided tendency to apply the Cæsarean section and Porro operation to cases which more mature experience will probably teach us to treat by other and less heroic methods.

### I.—THE PHYSIOLOGY OF PREGNANCY.

#### **1. The toxic power of the urine in gravid women.**

Laulanie and Chambrelent (*Annal. de Gynéc.*, Oct., 1890) have carried out experiments to determine the toxicity of the urine during pregnancy. According to M. Bouchard, the mean toxic power of the urine in the non-gravid state is 45 cubic centimètres per kilogramme of the animal—that is to say, it is necessary, as a rule, to inject 45 cubic centimètres of urine from a healthy person per kilogramme of the animal, in order to kill a rabbit. While 45 cubic centimètres are taken as a mean, the limits are found to extend from 30 to 60 cubic centimètres. In making their injections, the authors were careful to see what the chemical reactions of the urine employed were, that the woman from whom the urine was taken was healthy, and that the specimen of urine injected into the rabbit was taken from the total collection of twenty-four hours. The conclusions arrived at were as follows:—That under the influence of pregnancy the degree of toxic power of the urine is markedly lessened, and, as a consequence, that the organism of the pregnant woman, at the termination of gravidity, must be more or less saturated with toxic material.

Emile Blanc (*Annal. de Gynéc.*, Oct., 1890) has experimented by

injecting urine, taken from healthy women during the last months of pregnancy, into the veins of rabbits, in order to determine the truth of the theory put forward by M. Rivi re, namely, that puerperal eclampsia depended on an auto-intoxication, due to the formation of poisonous matters in greater quantities during pregnancy than in the non-gravid state. The result of thirteen experiments brought the author to adopt the conclusion that a pregnant woman, under ordinary conditions of health, does not form, and does not eliminate, more poisonous matters than the non-gravid female. Dr. Blanc has also made eight experiments to determine the toxic power of the urine in women recently delivered—that is, during the first five days of the puerperium. In this latter condition he found the toxic power of the urine somewhat increased beyond the normal standard (45 cubic centim tres per kilogramme), but not to any great extent. Such slight increase could, however, easily be accounted for by the special conditions which exist in women who have been recently delivered.

## 2. The polyuria of pregnancy.

Voituriez (*Archiv. de Tocologie*, Dec., 1890) points out that in the course of gestation polyuria of a type entirely confined to pregnancy is sometimes observed. In such case the urine is clear, slightly acid, and of normal composition, excepting that the proportion of water is enormously increased, so that the specific gravity is low. In cases of this affection, sugar and albumen are both absent, and there is no evidence of cystitis. The polyuria of pregnancy is probably more common than is generally believed. The only way of authenticating a case is to collect all the water passed in the twenty-four hours. The disorder is not usually observed until the middle of pregnancy, and it rapidly vanishes after delivery. In nature it is of no serious import, and does not prove a source of danger to either mother or child. Dr. Voituriez describes a case in which a pregnant woman was obliged to pass water more than twenty-four times in the four-and-twenty hours, passing over seven pints daily. She suffered from some degree of thirst. Delivery was safely accomplished, and the excessive secretion ceased immediately after the labour was concluded, and never recurred. The secretion of milk was normal. Bromides and belladonna had been tried, but were without influence on the excessive secretion of the urine.

## II.—THE PATHOLOGY OF PREGNANCY.

The first paper under this heading refers to the dangers that may arise when pregnancy is complicated by the presence of cardiac diseases. Careful study of the literature of this subject teaches us



that sudden failure of the heart's action in pregnant women arises in most cases either from want of compensatory hypertrophy, or from the presence of fatty degeneration in the muscular fibre. Valvular lesions do not lead, as a rule, to serious complications, provided the ordinary ventricular hypertrophy of pregnancy be well established. In the vexed question of how far it is wise and necessary to induce labour when ventricular failure is present, a solution is often afforded, fortunately, by nature undertaking the process herself. Reference to this subject is given in a paper published by Handfield-Jones in the *Brit. Med. Journal* (vol. i., p. 596), 1890.

### **1. Death in pregnancy from heart-disease.**

Remy (*Archiv. de Toccol. et de Gynec.*, August, 1891) publishes a series of cases of death, late in pregnancy, from heart-disease. The fatal event is sometimes sudden, taking place during work, exercise, or on getting up; more often it follows asystolic phenomena. In the fifteen cases collected by the author, the child was extracted, either by Cæsarean section or version, seven times; three were alive; in two of these three cases, if not in the third, the death of the mother had been sudden. In cases of sudden death, the chances that the child may be living are considerable, provided that the obstetrician acts promptly. When, however, the mother has died from slow asphyxia, due to asystolism, the child has probably expired before the parent. The question of hastening delivery is a grave one. The actual birth of the child by premature delivery, when safely ended, leaves the woman, for the time, better off than before labour; but, unfortunately, premature labour in heart-disease does not always improve the patient's condition. The cardiac and secondary lesions may be too serious to admit of more than temporary benefit; and the labour itself may place the woman for the time in extreme peril of fatal asystolism. A third fact has also to be considered, viz., that severe cardio-pulmonary complications often set in on the third or fourth day after labour. Altogether, it would appear best to induce abortion very early when cardiac disease with grave complications is present in a pregnant woman. It is impossible to lay down hard-and-fast rules, as the life of the mother and that of the child have both to be duly considered, and each case must be judged by the gravity of the conditions present.

### **2. Leukæmia in its relation to pregnancy.**

Laubenbourg (*Archiv. für Gynäk.*, vol. xl., 1891), in writing of leukæmia in its relation to pregnancy, relates a case in which a woman died from pulmonary cedema forty hours after giving birth to a macerated fetus in the twentieth week of development. She was 32 years of age, and had been pregnant ten times. She

had aborted on the last three occasions, and for six or seven years her health had been deteriorating, always getting worse at each pregnancy. During her last gestation she had all the signs of leukæmia. She lost but little blood during the labour, which lasted twelve hours. The uterus contracted well after expulsion of the fetus, though the mother was comatose during the last three hours of her labour, and grew rapidly worse afterwards. Great enlargement of the spleen was discovered after death. Taking the evidence of a large number of cases the author concludes that leukæmia may directly originate in disturbances associated with pregnancy, parturition, or childbed. Leukæmia is liable to cause abortion; it always appears to become worse during pregnancy. The prognosis of a case of leukæmia is especially bad if the patient should become pregnant. Since many cases grow progressively worse as pregnancy advances, it is sometimes justifiable to induce abortion or premature labour after due consideration of the relative dangers of the disease and operation.

The following paper on the same subject is also worthy of attention:—

**Chalmers Cameron** (*American Journ. Med. Sciences*, Nov., 1890) has come to the conclusion, as a result of careful investigation, that a leukæmic may go to full term and bear a healthy child. Leukæmia tends to bring on premature labour, or to reduce the patient to such a critical condition that induction of premature labour becomes a necessity. Leukæmia in pregnant women tends to run a rapidly fatal course, yet occasionally its progress may be slow though progressive. During the first three or four months of gestation a leukæmic patient may not suffer much inconvenience, but as intra-abdominal tension increases, her distress becomes greater and grave symptoms rapidly develop. Leukæmia does not prevent the occurrence of pregnancy, nor does it seem to limit its frequency. While epistaxis, melæna, and hæmatemesis may occur frequently during the progress of gestation, there may be no hemorrhage during delivery or in the lying-in period. Leukæmia seems sometimes to have an injurious effect on lactation, either leading to suppression of secretion or to deterioration of quality. Although a mother does not transmit leukæmia to her child, yet she may confer a tendency or predisposition to the disease. The children certainly exhibit sometimes anæmia and a tendency to epistaxis and enlargements of the glandular system.

### **3. Tetanus in its relation to pregnancy.**

**Alexandre** (*Journ. de Méd. de Paris*, Sept., 1890) records the case of a multipara, who developed tetanus eleven days after an abortion, which had occurred in the third month of pregnancy.



The attack commenced with the onset of dyspnoea on the day following her getting up from bed; this was soon followed by the regular symptoms of tetanus, and death occurred four days later. No cause could be discovered for the onset of the disease.

Dakin (*Obstet. Soc. Trans. Lond.*, 1891) also contributes a paper on the subject of tetany in pregnancy. He gives a brief description of tetany or tetanilla, and then describes a case at length. This case had the peculiarity that the spasms never completely relaxed during the three days of the disease. The contractions were accompanied by, and were due probably to very severe vomiting, and the two diseases combined led to a fatal issue, in which tetany dealt the final blow by involving the muscles of respiration. The author, from the few recorded instances of the disease in pregnancy, constructs a typical case, with which he compares his own. The differential diagnosis between the disease and other spasmodic affections which might be confounded with it (*e.g.*, hysteria, spinal meningitis, uræmia, etc.) is discussed, the treatment referred to, and general conclusions drawn. A useful table of cases and authors is appended to the paper.

#### **4. Ovariectomy during pregnancy.**

Engstrom (*Annals. de Gynéc.*, Nov., 1890) has performed ovariectomy seven times on gravid patients, two being in the second month of pregnancy, the remainder between the third and seventh. All seven patients recovered, and all, with one exception, suffered no interruption of their pregnancy, bearing living children. The one exception had her ovarian tumour removed at the second month, she aborted at the third, but had aborted at the second month three times before the operation.

#### **5. Excessive vomiting of pregnancy.**

Much has been written on the subject in the past twelve months, but little has been added to our knowledge. Local counter-irritation, rectification of uterine displacements, cure by the exhibition of sedatives, each of these methods have had their energetic advocates. Long lists of cures are wrought by such different lines of treatment, that the argument has been adduced by certain obstetricians that the whole matter is a veritable neurosis, and moral treatment is the only true panacea. The correct time for inducing abortion in the more serious cases is also far from settled, though probably the pulse will always be the best guide in this instance. While the heart-beat remains regular and unhurried, danger is seldom imminent, but with a pulse rising over 100 beats per minute, or becoming irregular, further delay can but encourage a fatal issue.

**Amand Routh** (*Med. Press and Circular*, Aug., 1891) draws attention to an iodine paint which he has found to be of the greatest value in the treatment of the severe vomiting of pregnancy. The paint is composed of equal parts of iodine, iodide of potassium, spirits of wine, and water; it is applied through the speculum by rubbing the cervix and the vaginal end of its canal with a small piece of cotton wool, the size of a pea, soaked in the solution. The author has given this treatment a trial for seven years, and has so far never failed to cure the morbid condition; at the same time he quite approves of attending to displacements and removing, as far as possible, all exciting causes of the vomiting.

**Gottschalk** (*Der Frauenarzt*, March, 1891) narrates a case in which menthol proved of the greatest value in the treatment of uncontrollable vomiting of pregnancy. The solution used consisted of one part of menthol in one hundred and fifty of water; a tablespoonful to be given every hour. The result was most satisfactory, relief being obtained almost immediately.

**Mackinnon** (*American Journ. of Obstet.*, vol. xxiv., Feb., 1891) holds that uterine displacement is the most usual cause of the vomiting of pregnancy. To remedy the displacement he introduces a speculum and packs the vagina with absorbent cotton so that the uterus may be raised and the displacement, as far as possible, corrected. He quotes two cases. The first, a lady aged 23, in her second pregnancy, was brought into a critical condition by uncontrollable vomiting. Dilatation of the os gave no relief. The uterus was acutely anteflexed and crowded down into the pelvis. Vaginal packing was continued daily for a week, but there was no vomiting after the first day. The second case was treated in the same way, and the patient only vomited once after the first packing.

**Wertheimer** (*Centralt. für Gynäk.*, Dec., 1890) praises the combination of the various salts of bromides in allaying the severe vomiting of pregnancy. He quotes the case of a woman who had required the production of abortion on two previous occasions for the uncontrollable vomiting of pregnancy. In her third pregnancy vomiting commenced on the fourteenth day and continued, until a mixture was given every two hours, the dose of which was half an ounce. This mixture consisted of three parts of bicarbonate of soda, two of bromide of potassium, two of bromide of sodium, and one of bromide of ammonium, dissolved in thirty parts of syrup of orange peel, and one hundred and twenty of distilled water. Under this treatment the vomiting ceased, and the pregnancy progressed without further complication.

**Cohnstein** (*Centralt. für Gynäk.*, Sept., 1891) advocates the



administration of large doses of bromide of potassium in cases of the uncontrollable vomiting of pregnancy. When the sickness does not cease after the administration of several doses, the drug may be considered unsuitable. The best results follow, when quite recent cases are treated with the bromide, and cases occurring in the earlier months of pregnancy are most manageable. Dilatation of the os uteri or cauterisation of the cervix has certainly cured many cases, but entirely through the impression which such proceedings make on the patient's mind. The author thinks it very important to distinguish between hysterical vomiting and sickness due to gastric or intestinal disturbance. Vomiting, when the tongue is clean and moist—often the first sign of pregnancy—must be counteracted by anti-hysterical treatment. This treatment must be prompt, as in neglected cases of purely neurotic origin, the constant vomiting may set up some disorder of the gastro-intestinal canal, and the patient cannot then derive benefit from purely anti-hysterical remedies.

Kaltenbach (*Zeitschrift für Geburtsh. und Gynäk.*, vol. xxi., 1891) holds that the clinical history and the cures of cases of uncontrollable vomiting of pregnancy indicate that the disease is essentially hysterical in origin. Pregnancy involves physiological and psychological conditions favourable to the development of hysterical symptoms in a modified form. Hyperemesis is often cured by a process akin to ordinary suggestion, like ordinary hysteria. "Doing something," dilatation of the os, massage, etc., often succeeds if the practitioner has gained the patient's confidence, and hosts of drugs have answered apparently under the same conditions. On the other hand, all these vaunted medicines and operations have failed, when employed by physicians who possibly do not possess as much tact as knowledge. The author quotes four cases in which a profound impression made on the nervous system of the patient by fright, emotion, suggestion, etc., caused a quick cessation of all vomiting. In short, he urges that hyperemesis gravidarum should be treated as a purely hysterical complaint. Prompt treatment is indeed necessary; for, as in the hysterical vomiting of non-pregnant women, the patient may, if at first neglected, die of syncope or nervous exhaustion even when the vomiting has been stopped. In every case, isolation from domestic cares and from the attentions of imprudent friends and relatives, together with appropriate moral treatment, should be enforced before so extreme a step as artificial abortion is undertaken.

#### **6. Ectopic pregnancy.**

Fenger (*Amer. Journal of Obstet.*, April, 1891) believes that the

vaginal operation is contra-indicated in cases in which the fœtus is living or the cavity of the sac is aseptic; for manipulation through the vagina is difficult, and the possibility of controlling hæmorrhage due to a separation of the placenta is much less than in the abdominal operation. When, however, suppuration has commenced, when the sac can be easily reached from the vagina, when fistulous openings with the vagina have been already established, and sufficient time has elapsed to cause obliteration of the placental circulation, then the vaginal operation is beneficial and to be recommended.

Orthmann (*Zeitschrift für Geburts. und Gyn.*, vol. xx., 1890) is of the opinion that if an organised blood clot is found in the Fallopian tube, it is probably, though not certainly, a clear proof that gestation has taken place in that tube: he founds his opinion on the examination of ten cases. In order to distinguish true cases of early tubal gestation from ruptured hæmato-salpinx, depending on other causes, it is not absolutely necessary to demonstrate the presence of decidual cells in the specimens examined; but tufts of chorionic villi should in all cases be sought for and found.

Alban Doran (*Brit. Med. Journal*, Oct. 10, 1891) describes a case of tubal abortion with double hæmato-salpinx, which for exactness of description and thoroughness of detail is of great value. The patient had borne one child ten years previously; two years later, a severe attack of pelvic pain had kept her in bed for two months. From this time forward she was never free of pelvic and abdominal pain. In April, 1890, when the catamenia was nearly three weeks overdue, the patient was seized with agonising pain in the hypogastrium. This attack was relieved by opiates, but several more severe seizures followed, rendering prolonged rest necessary. When examined on March 2, bimanually, a distinct resistance could be felt to the left of the cervix, but no deposit or well-defined body on the right. On March 7 an exploratory incision was made, when the lower part of the peritoneal cavity was found to be full of dark clot. Having cleared this out and broken down numerous adhesions, the left appendages were then drawn up. It was then seen that the tube was dilated close to its fimbriated extremity and lacerated at this point, a very recent clot filling up the laceration. The ostium was patulous and filled with clot. On the right side the tube was distended with clot and fluid blood, and bled freely from its very patulous fimbriated extremity. Both sets of appendages were removed after having been ligatured: their appearance is well shown in the accompanying woodcuts. An attack of nephritis occurred at the end of the second week, and



some rigors (probably of nervous origin) on the eighteenth day; but convalescence became established, and by September the patient



Fig. 1.—Right Appendages. The Ostium of the tube is abnormally patulous; the Canal dilated and filled with clot. The Ovary contains no recent Corpora Lutea.



Fig. 2.—Left Appendages, showing the rent in the tube close to the Ostium, which is patulous. The Ovary contains a large recent Corpus Luteum.

was in excellent health. The right tube, 4 inches long, contained a cylindrical, dark, friable clot firmly incorporated with the tubal

walls towards the uterine end. **Orthmann** insists that this incorporation of the clot with the wall of the tube is characteristic of hæmato-salpinx of early tubal pregnancy, as distinguished from other forms of hæmato-salpinx. Chorionic villi were easily demonstrated in the clot. The left tube showed a laceration at the region of dilatation, and at the edge of this tear the tube-wall showed under the microscope the appearances of acute catarrhal salpingitis. No trace of the products of conception were to be found on this side. Under the term "tubal abortion" the author would agree to include cases where hæmorrhage into the membranes blights the ovum and bursts the tube, and, secondly, cases in which the ovum is projected—entire or damaged—out of the ostium of the unruptured tube into the abdominal cavity. Mr. Doran thinks that there is strong reason to believe that early tubal abortion is not rare, being a frequent termination of extra-uterine gestation and a common explanation of pelvic hæmatocele.

**Gussner** (*Centralb. für Allgemein. Pathol.*, March, 1891) gives the history of a case of early tubal pregnancy and rupture. The patient, who had gone ten days over her regular time, was suddenly seized with sharp pains in the lower part of her abdomen, and died before a medical man could be brought. At the post-mortem examination, the uterus was found to be considerably enlarged and lined with a true decidua. A smooth, globular swelling projected from the fimbriated end of the left Fallopian tube, beginning four-fifths of an inch from its uterine end. The swelling was seven-tenths of an inch in length, and three-fifths of an inch measured transversely. A small, ragged tear was found on its superior aspect. Within the tube was discovered an ovum fully covered with chorionic villi; in the left ovary was a large corpus luteum, and the right appendages proved to be healthy. The author describes at some length the relation between the villi of the chorion and the maternal tissues.

**Veit** (*Centralb. für Gynäk.*, March, 1891) gives a case of tubal abortion. On abdominal section, the peritoneum was found full of clot and liquid blood. On removing the diseased appendages, it was noted that there was a characteristic dilatation in the middle of the tube, while the ostium was dilated to the size of a shilling, and the ovum covered with recent blood-clot protruded from it. There was no trace of any laceration of the tube. This case of intra-peritoneal hæmorrhage from the tube without rupture, and the expulsion of the ovum from the tubal sac, is of the highest importance. It is essentially a tubal abortion, and is clearly a cause of true hæmatocele which may subside under favourable conditions without bringing about a fatal ending.



Zedel (*Zeitschrift für Geburtsh. und Gynäk.*, vol. xxi.) agrees with Worth in including under the term "tubal abortion" all tubal pregnancies in which the ovum is projected out of the abdominal ostium of the unruptured tube into the peritoneal cavity, with more or less hæmorrhage. Tubal abortion he considers to be a relatively frequent termination of tubal gestation. A large proportion of cases of hæmatoceles, which form gradually in the course of several days, are due to tubal abortion. The distinction of tubal abortion as a definite pathological condition is likely to modify many current doctrines on the morbid anatomy and treatment of several well-known acute and subacute pelvic affections.

To those interested in the pathology of "Tubal Pregnancy," a valuable paper by Bland Sutton will be found in the *Lancet* of Feb. 28, 1891. He discusses the subject under four heads, viz., changes in the tube, changes in the ovum, tubal abortion, and rupture of the gestation sac.

Bröse (*Centralb. für Gynäk.*, Jan., 1891) gives an interesting case of a tubal sac ruptured in the first month of pregnancy. The woman had been treated in 1887 for gonorrhœa with pelvic peritonitis. Her monthly period, due on October 12, 1890, did not appear, but on October 18 a "show" set in and lasted fourteen days. From November 1st to 10th she felt well, but on the day following she suddenly became acutely anæmic, and was admitted into the hospital. The weak pulse somewhat improved, but on November 14th severe vomiting set in, the abdomen became enormously distended and very tender. No flatus passed even after enemata. Abdominal section was performed without delay. The peritoneal cavity was full of clots and dark fluid blood, and the intestines were tensely distended with gas. No trace of peritonitis could be seen, nor was there any mechanical obstruction. On gentle pressure of the colon air escaped from the rectum, the tympanitis was therefore attributed to paralysis of the intestine. A rent, one inch long, was found in the thickened right tube near the uterine end. The ovum was found in a collection of clot in the pouch of Douglas. The rent in the tube was covered by coagula. Death from collapse occurred in  $2\frac{1}{2}$  hours after the operation. At the necropsy no trace of peritonitis, sepsis, or obstruction could be found.

### 7. Habitual abortion.

Leopold Meyer (*Centralb. für Gynäk.*, April, 1891) discusses Fehling's theory, which associates death of the fœtus and white infarcts in the placenta with kidney disease manifested by albuminuria. He insists, however, that three clinical facts must not be overlooked :—(1) Renal albuminuria in pregnancy without

death of the fœtus, or placental disease is common ; (2) habitual death of the fœtus (exclusive of all syphilitic cases) may occur with or without white infarct ; (3) white infarets have been observed in cases where there was no albuminuria, with or without death of the fœtus. The author, therefore, doubts whether it can be laid down as a law absolutely, that morbid changes in the kidney are the cause of death of the fœtus and of placental disease. Certain cases lead him to think that, as in the eclampsia of labour, kidney disease is not so much the cause as some other influence, which is favoured by the impairment of the renal function.

Godson has conferred a boon on practitioners of the obstetric art by modifying the ordinary set of Hegar's dilators in such a way that these useful instruments can be carried about in a small compass. In the treatment of hæmorrhage, depending on incomplete abortion, dilatation of the cervix is constantly required, but hitherto, owing to their bulk, the practitioner has hesitated to add the case of dilators to his obstetric bag.



### III.—THE MECHANISM OF NORMAL LABOUR.

The first paper which comes under this heading is an account of the researches of Dr. Barbour on the mechanism of delivery by the study of frozen sections, and is a distinct addition to this branch of science. The diagrams which accompany the paper in the *British Medical Journal* are worthy of the closest attention.

#### **I. Some recent results from the study of labour by means of frozen sections and casts.**

Barbour (*Brit. Med. Journal*, Nov., 1890) gives some recent results from the study of labour by means of frozen sections and casts. He sums up these results as follows :—

1. The shortening of the antero-posterior diameters of the bony pelvis by the soft parts is for the conjugate, at the brim half an inch, in the cavity three-quarters of an inch, and at the outlet



seven-eighths of an inch ; and for the oblique diameter, at the brim almost an inch, and in the cavity still more, due to the projection of the obturator internus muscle.

2. The cellular tissue at the base of the broad ligaments is compressed by the sinking down of the uterus after delivery, so as practically to close the abundant sinuses.

3. The peritoneum is, during the second stage, lifted out of the pelvis anteriorly and somewhat elevated posteriorly, returning after labour to its original position.

4. The bladder is in part elevated, so that while its neck does not change its position a portion of the organ becomes abdominal.

5. The uterus in the intervals between the pains shows a certain elasticity, like the uterus in pregnancy, but with this difference, that while the uterus in pregnancy moulds itself on the spinal column and bony pelvis, the uterus during the second stage moulds itself on the fœtus.

6. In retraction, the uterine wall becomes shorter and thicker, but not in the same ratio ; while the vertical circumference of the walls is diminished by one-third, the thickness of the walls is increased to four times.

7. The lower portion of the anterior uterine wall is thinner than the rest before labour begins ; this thinning is increased during labour. A corresponding thin part develops posteriorly. There is, therefore, in normal labour (that is, with no pathological resistance) a separation of the uterine wall into two parts.

8. The boundary line between these two parts persists when no contraction is present, and should, therefore, be called the "retraction" and not the "contraction" ring.

9. As a deduction from the foregoing, it follows that once a body in the genital canal has passed below this ring, it will no longer have active muscle in the wall of the canal to operate upon it.

10. While the anterior vaginal wall retains, during labour, its usual length and thickness, the posterior extends to more than twice its former length and becomes very thin.

11. The fœtus is elongated during the second stage by the straightening of the spinal column.

12. The flexion of the head becomes, during labour, less pronounced than it was during pregnancy.

13. Rotation of the head takes place before that of the shoulders, and is, therefore, independent of it.

14. The process of the moulding of the head consists in a pushing of the occiput underneath the parietal bones, and a distortion of the plastic head toward the unsupported part.

15. The placenta does not become separated as a result of the diminution of its site during the second stage.

16. The membranes become separated during the second stage up to the retraction ring, but not above it.

## **2. Painless delivery.**

Brunon (*Archiv. de Tocologie*, Nov., 1890) describes a case of great obstetric and medico-legal interest. The patient, aged 22, had a troublesome cough shortly before term. The coughing was accompanied by lumbar pains, which increased in severity. At eleven o'clock in the evening the patient tried to pass a motion. She sat over an hour in the closet, thinking that her pains signified painful defæcation. Then she went to bed, but woke up at 1.30 a.m., feeling a desire to pass a motion, with lumbar pains such as she had felt before when constipated. As she rose to go to stool, a smart lumbar pain occurred, and she felt something between her thighs. On handling it, she found, much to her surprise, that it was the head of her first-born. She declared to Dr. Brunon that the pains were entirely lumbar, she had no colicky sensations, and none of the expulsive pains usually so severe. The desire to defæcate was strong, and she stated that the child might have been born into the pan of the closet without her recognising the truth of her condition till the moment of delivery. The patient was an intelligent, well-educated woman free from any neurosis. The case proves that an inexperienced person might expel her infant into the water in the pan of a water-closet without any intention of infanticide.

## **IV.—THE COMPLICATIONS AND ACCIDENTS OF LABOUR.**

### **1. Puerperal eclampsia.**

Whatever may be the exact pathology of puerperal convulsions, it is evident from the following papers that there is a consensus of opinion in regarding what Dr. Auvard has termed a *strike on the part of the organs of elimination* as the most important factor in their production. At what stage of pregnancy this failure of elimination commences is at present unknown, but if a pre-albuminuric stage of nephritis does really exist, as suggested by Dr. Galabin, then it becomes evident at once that the very earliest symptoms of failure should be regarded as serious, and be met by free purgation, milk diet, rest in bed, and, if necessary, by the induction of premature delivery. The need for prompt recognition and treatment becomes still more emphasised when it is known that the mortality of the convulsions is the greatest in



cases in which the seizures commence before the onset of labour pains. The evidence as to the good effects of venesection is still contradictory. On the one side we find able and competent observers claiming the greatest success from its free use, while equally able obstetricians have gained as good result without resorting to blood letting. The experience of longer series of cases is required to settle this point; meanwhile it may be assumed that evidence of increased vascular tension will still prove an indication for the use of the lancet.

Galabin (*Brit. Med. Journal*, Sept., 1891), in discussing the etiology of puerperal eclampsia, gives special attention to the following points:—(1) The causation of that form of albuminuria which is associated with eclampsia; (2) the relation between the albuminuria and the convulsions; (3) the explanation of those cases in which the urine is at first free from albumen, and the albuminuria only appears after the convulsions; also of the very rare cases in which albuminuria is absent throughout. He did not think that albuminuria in pregnant women, resembling that associated with eclampsia but without the occurrence of convulsions, was at all a common complaint. Some observations in the Guy's Maternity Charity gave a proportion of only 2 per cent. in parturient women of albuminuria, recognisable in the ordinary way by heat and nitric acid. The special frequency of eclampsia in primiparæ seemed to depend in part on purely mechanical causes, viz., the greater intra-abdominal pressure and the interference thereby produced with the renal circulation. Referring to Dr. Herman's observations on the diminished excretion of urea in eclampsia it was possible that some such poisonous substances as ptomaines may exist in the urine, though as yet not isolated by the chemist, and that their excretion may be diminished "pari passu" with that of urea. In those cases in which there had been an absence of albuminuria throughout, it appears that two causes, namely, increased reflex susceptibility, and the presence of a source of irritation, complete the whole pathology. In some cases the convulsions might depend on a pre-albuminuric stage of nephritis, that part of the kidney which excretes urea and other solids becoming affected before the glomerular tract which is especially concerned in the exudation of albumen. The theory, which made the eclampsia and nephritis alike to depend on the presence of certain microbes, was by no means proven as yet. As regards treatment, venesection would undoubtedly stop the convulsions sometimes, but it was doubtful whether it is as efficacious as certain other means in promoting the recovery of the patients; it was quite possible that in some cases it rendered

the patient more liable to death from some complication. In the Guy's Charity during venesection days the mortality in fifty cases of puerperal eclampsia was 30 per cent.; since venesection had been discontinued the mortality in thirty-four cases had been only 20·5 per cent. Venesection might be adopted on one or two different principles in eclampsia:—(1) A moderate venesection to relieve the vascular system in cases in which there is extreme venous congestion and embarrassment of the lungs; (2) a venesection to stop the convulsions, and for this purpose repeated if necessary, or carried to a very large amount. The statistics already given appear adverse to this form of venesection.

In the discussion that followed the reading of Dr. Galabin's paper, Dr. Auvard stated that, briefly summed up, the pathogenic theory of puerperal eclampsia viewed the disease as the result of a "strike" on the part of the organs of elimination, giving rise to intoxication of the organism. The therapeutics of eclampsia comprised the threefold indication to favour elimination by means of purgatives, diuretics and diaphoretics, and the threefold indication of sedation by means of anæsthetics, venesection, and by emptying the uterus.

Josef Smits (*Der Frauenartz*, Sept., 1891) publishes clinical notes of a very severe case of puerperal convulsions coming on in the ninth month of pregnancy in a well-nourished girl of 19. The treatment consisted in *heroic* doses of calomel; 61 grains of the drug being given. With the onset of diarrhœa the convulsions began to lessen, and complete recovery ensued.

Herman (*Obstet. Soc. Lond. Tracts*, vol. xxxi.) points out that to understand the relation between renal disease in pregnant women and eclampsia of pregnancy, it is necessary to compare cases of renal disease with eclampsia with cases of renal disease without eclampsia. Four cases of the latter kind are detailed in this paper, of which the chief features are as follows:—

CASE 1.—*Second pregnancy.* Morning sickness ceasing about the middle of third month; vomiting returning in seventh month together with œdema, giddiness, amblyopia, and disturbed sleep; slight anæmia; no marked cardiac hypertrophy; urine solid with albumen; quantity of urine increased; excretion of urea slightly below the average; induction of labour near end of seventh month; child living; rapid diminution of albuminuria, and increase of urea-excretion following delivery; recovery; subsequent pregnancy without similar renal changes.

CASE 2.—*Sixth pregnancy.* Twins; hydramnios, œdema in last four months of pregnancy, no other symptoms, urine solid with albumen, about half paraglobulin; slightly diminished quantity



of urine and urea; labour accelerated by separation of membranes around os uteri; children living; delivery immediately followed by great diminution in albuminuria, great diuresis, and augmented urea-elimination; temporary return of albuminuria during latter part of lying-in period; apparently complete recovery.

CASE 3.—*Sixteenth pregnancy.* Fits after confinement six years previously; symptoms coming on at beginning of eighth month of present pregnancy; intra-uterine death of fœtus; premature labour induced at end of eighth month after one week's treatment by rest and milk diet; no diminution in quantity of urine, but diminished urea-elimination; albuminuria; diminution of albuminuria and partial restoration of urea-excretion before delivery, continuing after delivery; recovery, but persistence of renal disease.

CASE 4.—Albuminuria; uræmic twitchings; cerebral hæmorrhage; induction of labour at beginning of eighth month; child living; diminished percentage of urea before delivery; after delivery rapid increase in percentage of urea, and temporary diminution of albuminuria; renewed cerebral hæmorrhage; coma; death; no autopsy.

In all the cases delivery was followed by diminished albuminuria and increased urea-excretion; these effects of delivery were most marked in Case 2, in which the abdominal distension was greatest, and least in Case 3, in which the abdominal enlargement was least. In the discussion which followed, Dr. Hayes advocated the induction of premature labour much earlier than was usually the custom, and pointed how in the latter months the danger to the mother rapidly increased as the gestation advanced. The life of the fœtus was generally compromised, and fœtal death occurred not seldom.

Löhlein (*Central. für Gynäk.*, June, 1891), searching the records of various hospitals, has collected 325 cases of puerperal eclampsia out of 52,328 labours. Out of these 325 cases, 63 died from the convulsions, and 14 from other complications. The mortality was thus 19·38 per cent., or not one-fifth, whereas it had been formerly quoted as high as one-third. The lowest mortality (11·6 per cent.) was among primiparæ attached after birth. The highest (29·4 per cent.) amongst multiparæ, in whom the convulsions began before delivery. Of the 248 cases which survived, 13 had marked psychoses which, as a rule, soon disappeared, 5 had pneumonia, 3 pleurisy, 22 kidney disease. In 71·1 per cent. of the cases, operative measures were needed—viz., 108 applications of the forceps, 19 turnings, 13 craniotomies,

eviscerations, etc., 2 inductions of labour, and 7 Cæsarean sections. Of the latter operations 5 were done on dead patients, 1 on a moribund case, and 1 on a living patient; in the latter case both mother and child were saved. Cæsarean section is only justifiable when the cervix is so undilatable that a living child cannot be delivered through the natural passages. Large doses of morphia appear in some cases to exercise a good influence on the convulsions.

Swayne (*Bristol Med. Chir. Journal*, March, 1891) gives details of thirty-six cases of puerperal eclampsia occurring in his own practice. He considers that cases should be studied according as they occur before, during, and after labour, for the prognosis and treatment differ widely in each of these varieties. The first class is by far the most serious, while the last is very favourable. Out of his thirty-six cases, six mothers and nine children died in eleven cases of convulsions *before* labour; five mothers and nine children in twenty cases *during* labour, and none of either in five cases *after* labour. In the second class delivery should be hastened; but in the first class it should be had recourse to as a *dernier ressort*. He holds bleeding and anæsthesia as the two most important remedies, whilst in suitable cases delivery must be considered as little inferior in value.

Lomer (*Central. für Gynäk.*, xliii., 1890) describes two cases occurring in the same house, of pregnant women suffering with nephritis and impaired vision. The first, a primipara, aged 33, suffered for four weeks from œdema and gradually increasing impairment of vision. For twenty-four hours the movements of the child had ceased, and free flooding had set in, attended by cramping pains. When first seen the patient was anæmic, almost blind, and the pulse could hardly be felt at the œdematous wrist. Examination by the abdomen and vagina showed the uterus to be tensely contracted, the child dead, the os the size of a shilling, and the placenta presenting by one edge. As the vertex was presenting, turning was performed under chloroform, and an eighth month dead fetus was extracted with difficulty. There were large clots in the uterus, and the placenta, when removed by the hand, showed white infarcts in its substance, and was cupped at its centre owing to a large area of hæmorrhage. The urine coagulated completely on boiling, and contained abundant hyaline and granular casts. The œdema suddenly disappeared during the outbreak of a sweat rash in the puerperium. The albuminuria vanished more slowly, and the impairment of vision had not entirely gone when the case was reported. The second case, occurring at the same time and in the same house, was that of a multipara in the eighth



month of pregnancy, who came complaining of intense headache and defective vision. There was no œdema, but the urine was loaded with albumen and full of finely granular and hyaline casts. As in spite of milk diet and confinement to bed the headache and loss of sight increased, induction of premature labour was decided upon. This was done by Schröder's method, *i.e.*, the abdomen was fomented for five minutes with hot and cold water alternately. In two hours pains came on, and six hours later a healthy child was born. The placenta was healthy. After the emptying of the uterus the headache slowly disappeared; the albumen was absent from the urine on the fifth day after delivery; the defective vision was still marked when the patient left her bed on the fourteenth day after labour. Regarding the impairment of vision, Dr. Herschel reported that in the first case there was no retinitis. The disturbance was due to uræmia, and paralysis of accommodation depending on the very marked debility. The second was a marked case of retinitis albuminurica.

Ehrhardt and Favre (*Nouvelles Archiv. d'Obstét. et de Gynéc.*, Sept., 1890) endeavour to explain why pregnant women suffer from albuminuria only in exceptional cases. They trace the complication to local disease. Out of three hundred placenta they examined twenty were from cases of albuminuria. In nineteen of these placenta white infarcts were detected, and all the patients, save two, were subject to severe leucorrhœa when not gravid, and often to colicky pain during menstruation, symptomatic of endometritis. Colonies of bacteria were found in the infarcts, and when some germs, taken from infarcts in the placenta of patients, who had suffered from eclampsia as well as albuminuria, were injected into the veins of rabbits and guinea pigs, parenchymatous nephritis was set up. Thus the morbid changes in the decidua which cause placental infarcts are induced by the same agency that induces the nephritis of pregnancy. This agency is the presence of germs in the placenta, which germs produce in non-pregnant patients leucorrhœa and other symptoms of chronic endometritis. The focus of infection being the uterine mucous membrane, that structure requires attention and treatment. When it is unhealthy the patient may repeatedly bear fetuses which die before birth owing to disease of the placenta—that same disease which, in the opinion of Drs. Ehrhardt and Favre, causes the nephritis of pregnancy with consequent albuminuria. The lesson of their investigations is clearly that uterine discharges should never be overlooked nor held to be of trifling import.

## **2. Placenta prævia.**

Kolff and Treub (*Nouvelles Archives d'Obst.*, Sept., 1890) draw

attention to the valuable results obtained at Leyden by their use of version in cases of placenta prævia. Their great principle of practice is to separate version from extraction. The former is undertaken to save the mother. It is only in cases of subsequent hæmorrhage that extraction by the feet is carefully undertaken. Dr. Kolff praises that practice, as it renders interference practicable very early in the labour, before the mother is exhausted by bleeding, saves her from the risks of prolonged plugging, and allows the latter part of the labour to continue slowly, and yet without danger. Moreover, the risk of post-partum hæmorrhage is greatly lessened. The risk to the child is theoretically great, but their statistics prove that the infant mortality is not very high.

### 3. Rupture of the uterus.

Slechta (*Der Frauenarzt*, June and July, 1891) describes a series of cases of this grave accident observed in Prof. Pawlik's wards at Prague. Of the eight cases, three were complete, or perforating. In two of these cases the uterus was amputated, in the other the tampon was employed, but all died. Five cases were incomplete, and the tampon was introduced in each instance with satisfactory results. Hæmorrhage was arrested by compressing the uterus between one hand on the abdomen, and the other in the vagina; as an accessory, an ice-bag over the hypogastrium was useful. Tampons of iodoform gauze were then introduced, and opium administered for the first three days.

## V.—OPERATIVE DELIVERY.

### A.—BY THE VAGINA.

#### 1. Rigidity of the cervix.

Guéniot (*Revue Obstét. et. Gynécolog.*, Feb., 1891) discusses two questions raised by Dr. Lorient. In anatomical rigidity of the cervix during labour is the obstetrician justified in making incisions; and if so, what is the best method of making such incisions? The first question is to be answered in the affirmative, provided that waiting and gentler measures have failed. In the case of a simple effaced cervix which remains rigid, the edges should be gently cut in several places, to the right and left, by means of long-handled scissors. When strict antisepsis is maintained, this practice is free from danger. The difficulty and danger are, however, great when the cervix retains its normal length down to term, especially when the upper part remains rigid; for in operating on these cases there is great risks of wounding large vessels. The author proceeds in these cases just as in cancer of



the cervix. Not long ago he had to incise a cervix deeply involved in malignant disease. He passed up a pair of scissors, guarding the blades between two fingers, and made small incisions from the sharp edge of the external upwards as far as the internal os. He stretched the canal frequently with the fingers, so as to make prominent numerous bands which were the chief obstacle to dilatation. These bands were then nicked with the scissors. The cervix was in this way widened sufficiently to allow of version, and but little blood was lost. Dr. Guéniot, having to deal with a labour retarded by anatomical rigidity of the upper two-thirds of a long cervix, adopted the same method of operating, chloroform being first given. Instead of the scissors, however, a probe-pointed bistoury was used. Many sharp bands were put on the stretch by the manœuvre described already. The os internum was the narrowest part of all, and required seven or eight superficial radiating nicks with the bistoury. Three fingers could then be introduced into the uterine cavity with ease, all rigidity vanished, and the labour ended naturally. In all cases the incisions should be numerous and superficial.

Mesnard (*Archiv. de Tocol. et de Gyn.*, Jan., 1891) narrates the case of a lady who had suffered from manifest signs of syphilis, but after eighteen months of antisyphilitic treatment became pregnant for the second time, and labour pains set in at full term. All external signs of syphilis had disappeared. The pains were strong and frequent, the presentation normal, the pelvis free from contraction; but for thirty-three hours the os remained undilated, and barely admitted the tip of the forefinger; its border felt like a chaplet of beads, owing to a circle of very hard elliptical masses of deposit. The inferior segment of the uterus was so thinned by pressure of the foetal head, that the sutures and fontanelles could be distinctly felt through its walls. The membranes ruptured thirty-one hours after the beginning of labour, and meconium escaped; the pains remained as strong and frequent as ever. The patient herself was a big, powerful woman. The author made four incisions into the cervix with long scissors; four more were soon found to be necessary, then the forceps were applied. Two more incisions had to be made through the edge of the os which held back the occiput. In extraction of the foetus, a long rent was made in the vagina, extending downwards into the right labium minus. One hour after delivery, severe internal hæmorrhage set in; this was controlled by hot water and perchloride of iron injections, but acute septicæmia soon set in, and the patient narrowly escaped with her life. The cervix suppurated and discharged freely. Recovery was not complete till the end of

the third month; the hard deposits in the cervix had then disappeared.

Auvard (*Archiv. de Tocologie*, Jan., 1891) narrates a case of so-called "false rigidity of the cervix" in labour. A multipara had her pains commencing at full time on December 4th, 1890. These ceased for five and a half hours next day, but returned, and became very strong. The liquor amnii escaped on December 6th, at five o'clock in the morning. Two hours later, examination showed that the os was but slightly dilated. The head was presenting in the right occipito-posterior position; the os was looking backward and to the left, while the lower uterine segment was much bulged to the right. Thus, the fœtus was being pressed in a faulty axis. The patient was becoming exhausted, and pains recurred every three or four minutes. Dr. Auvard, on examining again about half an hour later, was struck by the different axes of the cervix and body. He then pressed the fundus with his hand from the right to the middle line, and with his finger hooked down the external os towards the centre of the pelvis. Violent pains followed, the head descended more fully on to the os, dilatation of the cervix was complete in twenty minutes, and ten minutes later the child was born.

### 2. Cocaine in labour.

Bousquet (*Archiv. de Tocolog.*, Dec., 1890) has published a series of cases in which cocaine was used during labour. He argues that the full effects of cocaine are not obtained by using it as an ointment and rubbing it over the cervix and other parts, but that it is necessary to inject it hypodermically. His plan is to inject half a Pravaz's syringe of a 1 in 20 solution of cocaine into each labium majus about ten minutes before the delivery of the head is expected. In some of the cases he placed a plug of cotton wool, soaked in the cocaine solution, against the cervix as an additional means of securing freedom from pain. As regards any deleterious effects of the cocaine, the author has no bad results to chronicle; the treatment was in all the cases applied to patients in the recumbent position.

### 3. Labour impeded by fœtal tumour.

Bar (*Annal. de Gynéc. et Obstét.*, Jan., 1891) describes a case in which, though the presentation was vertex, yet the labour was arrested by a tumour of the fœtal coccyx. The head had presented normally, and the body was expelled without difficulty as far as the umbilicus; but the remainder of the fœtus resisted all attempts at delivery. As the operator suspected some tumour of the trunk to be the cause of this delay, and was confirmed in his suspicions by careful palpation, he cut through the body of the



child and pushed up the breech. By this manœuvre he was enabled to bring down a leg and deliver the retained lower half of the child. The malformation, which had delayed delivery, was found to be a congenital, coccygeal tumour of the usual type, probably an amorphous parasitic fœtus—a "veratoma."

**Westerschulte** (*Nouvelles Archiv. d'Obstét. et de Gyn.*, August, 1891) was called to a case where the child was half-born, the head and umbilicus being exposed. Examination detected a soft mass behind the breech, which felt like a second bag of waters. After firm traction for fifteen minutes the child was suddenly delivered. A big cystic body hung down from the child's breech; it was double the size of the child's head, and contained a placenta-like structure and a piece of cartilage an inch and a half long. The child had no anus, but the rectum opened into the cyst, which represented a parasitic fœtus.

#### B.—ABDOMINAL SECTION.

The subject of Cæsarean section continues to attract much attention from practitioners of midwifery. In the hands of experienced operators, when the section is done as a primary operation, and where the conditions are favourable, the mortality is being rapidly approximated to that of ovariectomy; but in cases in which turning or other manipulations have been previously tried, in which the patient has become exhausted by delay, or where complications exist, the death-rate is still enormously high. It is tolerably certain that almost all the successful cases are published, but it is almost equally certain that numerous unsuccessful cases occur yearly of which no record is kept. The details of the operation are fairly perfected, but the importance of an early recognition of the conditions which call for operation and the necessity for prompt interference do not appear to be as yet fully appreciated.

**Neumer** (*Cent. für Gyn.*, April, 1891) narrates a case in which Cæsarean section had to be performed owing to the enormous size of the fetus. The patient had already given birth to eleven children, but in this pregnancy she had become more than usually distended, and labour pains set in when she was four weeks over her time. An attempt to deliver by turning had been made, but without success; when abdominal section was resorted to the patient had become already exhausted, and death followed shortly after the completion of the operation. The weight of the fœtus was estimated at twenty-four pounds.

**Van der Meij** (*Nouvelles Archiv. d'Obstét. et de Gynéc.*, Oct., 1890) relates a case of puerperal eclampsia occurring at the

eighth month, in which a successful Cæsarean section was performed. Treatment had failed to control the fits, and the small size of the os rendered rapid delivery by the vagina impossible. The child was born alive, but died on the sixth day. The mother made a good recovery.

Halbertima (*Annal. de Gynéc.*, Oct., 1890) thinks that Cæsarean section is justifiable in the more critical cases of puerperal eclampsia. He has twice operated under these conditions, and in each case has saved both mother and child. The blood loss due to the operation is in itself a gain, as vascular tension is thereby lowered.

Swiecicki (*Der Frauenarzt*, Oct., 1890) gives an account of a case in which Cæsarean section was performed owing to the presence of a pelvic tumour, which grew from the right sacro-iliac synchondrosis, and which was believed to be an enchondroma. The result was successful both to mother and child. He refers to some twelve similar cases, and points out that in six of them both mother and child were saved.

Murdoch Cameron (*Brit. Med. Journal*, March, 1891) publishes a paper on the relief of labour with impaction by abdominal section as a substitute for the performance of craniotomy. He gives a table of ten cases operated upon with only one death, and describes, with the assistance of diagrams, his method of suturing the uterus. He prefers to operate, when possible, before labour pains have set in, and advocates rapidity in the performance of Cæsarean section. Porro's modification he is disposed to reserve for cases where the uterus has been injured or ruptured by violent and vain attempts to extract the fœtus by the natural passages.

Carlo Cucca (*Giorn. Internaz. delle Scienze Med.*, July, 1890) reports a case in which symphysiotomy was successfully performed by Prof. Novi at Naples. \* The patient, a dwarfish and deformed woman, aged 21, with a rickety and extremely narrow pelvis, had been in labour for six hours; the os was fully dilated, and the fœtus, which was alive, was presenting in the second cranial position. As the outlet was too narrow for delivery by forceps, Prof. Novi, who is strongly opposed to embryotomy on a living child, after careful disinfection of the seat of operation, made an incision  $2\frac{1}{2}$  centimètres long in the middle line, commencing about 1 centimètre above the pubis; the soft parts were divided down to the symphysis, which was then cut through. The two bones immediately sprang apart to a distance of two centimètres. The uterine contractions were so weak and the head of the fœtus so large, that delivery had to be completed with the



aid of forceps. When the head was passing the lower outlet of the pelvis, the gap between the pubic bones measured 81 millimètres, but there was no "starting" of the sacro-iliac synchondroses, which were firmly supported by two assistants. The child, which was born alive, was remarkably large in all its dimensions, especially the head, which exceeded the average by about 1 centimètre in all its diameters; moreover, ossification was very fully advanced. After careful disinfection with sublimate solution, and the application of a dressing of iodoform gauze to wound, a bandage was placed round the pelvis to keep the pubic bones in apposition, and another round the knees. Recovery was perfect, the wound was completely healed in a fortnight, and on the twentieth day the patient was able to leave her bed, and a few days later to walk out of the hospital. Dr. Cucca points out that while according to most authorities 77 millimètres is the extreme distance to which the pubic bones can be separated without risk of injury to the sacro-iliac synchondrosis, in this case they were fully 81 millimètres apart. He goes on to say that Prof. Morisani performed symphysiotomy in several cases with perfect success during the past year, and that he himself had seen the operation done in several other cases with the happiest result to the mothers as well as to the children.

## VI.—THE THIRD STAGE OF LABOUR.

### 1. Post-partum shock.

Haig Ferguson (*Tract. Edin. Obstet. Soc.*, vol. xiv.) relates three cases of post-partum shock, due to inadvertent pressure of an ovary or Fallopian tube in the process of expressing the placenta by the Credé method. In all his cases the patients were nervous subjects, and became suddenly unconscious directly after, or simultaneously with, the expression of the placenta. They remained so for several hours, their condition exciting the gravest apprehension of the medical attendant and friends. There was no other condition present which could account for the symptoms, and in all the cases a good recovery was made.

Gibson Graham (*Brit. Med. Journ.*, May, 1891) narrates the following case:—The patient, a woman of a nervous temperament, was delivered after an easy and natural labour of her fifth child. The uterus contracted firmly on the placenta, but as thirty minutes elapsed without its expulsion, the Credé method of expulsion was resorted to. During this process, which did not occupy many minutes, she complained greatly of pain, cried out, and then became quiet. Immediately after the expulsion of the

placenta, the patient was noticed to be perfectly unconscious, with shallow and occasionally sighing respiration, and radial pulse imperceptible. The limbs were flaccid, but the uterus was well contracted, and there was no hæmorrhage. The conjunctival reflexes were present, and the pupils dilated. In about fifteen minutes the radial pulse had recovered its force, but it was three hours before the patient had fully recovered. The puerperal period was passed through without any bad symptoms.

## 2. Retention of placenta.

Hirigoyen (*Bulletins et Mém. de la Soc. Obstét. et Gyn. de Paris*, Feb., 1891) gives an interesting case of the retention of the placenta in one horn of a uterus bicornis for eleven hours after the birth of the child. Flooding set in half an hour after the delivery of the fœtus, necessitating the introduction of the operator's hand to remove the placenta. At first the latter could not be felt, but on introducing the hand more deeply; it was found to be situated in the uppermost part of a distinct right cornu. Though repeated attempts were made, it was found impossible to remove the placenta by the hand; hypodermic injections of ergotine and vaginal douching were equally unsuccessful, but eleven hours after birth sharp uterine pains came on, and caused the expulsion of the retained mass. A good recovery was secured.

## 3. The dry treatment of flooding.

Jorissenne (*Archiv. de Tocologie*, Jan., 1891) writes in condemnation of the principle of allowing plenty of water to allay the thirst of patients exhausted by flooding. The practice is advocated on physical and therapeutic grounds; yet its defenders admit that there is diminution of the plasticity of the blood in these cases, and administer iron and other remedies to increase the plasticity. The absorption of quantities of water into the circulation must have quite the opposite effect. The author maintains that the patients should not be allowed to drink freely, but administers slices of lemon with sugar to quench the thirst. At the same time he keeps the patient in the recumbent posture with the arms raised, and from time to time allows the inhalation of ammonia. This treatment he considers especially advisable in the case of women liable to deficiency of coloured blood corpuscles. He admits, however, that this dry treatment of flooding might be harmful, if too rigidly enforced in very plethoric subjects.



## VII.—THE PUERPERAL STATE.

**I. Metritis dissecans.**

Höchstebach (*Archiv. für Gynäk.*, vol. xxxvi.) describes a case of this disease following a lingering first labour. The membranes were ruptured too early, the os was long in dilating. The forceps were applied to the head of the still living child before the os was fully dilated. Four attempts at delivery failed. Sixteen hours later a dead fœtus was extracted with the help of the forceps. Post-partum hæmorrhage set in, and the placenta was detached with the hand. The uterine cavity was washed out with an antiseptic lotion. Within an hour symptoms of septic infection set in. Stinking gases and pus escaped from the uterus, sloughs of vaginal mucous membrane were discharged, and a vesico-vaginal fistula formed. Pneumonia set in, and on the twenty-sixth day after labour a large slough, consisting of uterine and vaginal tissue, was expelled with much fetid, purulent discharge. The pyæmic symptoms passed off for a time, and six months later a plastic operation was done for the case of the fistula, but three months later the patient died of pyæmia. A necropsy was performed and the former existence of metritis dissecans demonstrated. The uterus and vagina showed the effects of extreme cicatricial contraction. Extensive plugging of veins, abscesses in the left kidney and lung, and left hip-joint disease were also present. The author has collected twelve cases of this disease; three proved fatal, two through sequela of infection, one from rupture of the thinned uterus during the administration of an injection. This latter case should serve as a warning to obstetricians, as showing that caution is needed in using injections into the uterine cavity, especially when there is much fetid discharge. Diagnosis is easy as soon as the sloughs begin to escape. All the twelve cases could be traced to puerperal infection. One patient had typhoid, one syphilis; these constitutional diseases may have encouraged local septic infection. It is not certain whether the disease begins as primary necrosis of the uterine tissue through plugging of its vessels with coagulum or germs, and subsequent demarcation by an inflammatory process, or as destruction of the uterine tissue by primary inflammation and free exudation.

Garrigues (*Archiv. für Gynäk.*, vol. xxxviii.) relates two cases of this rare and formidable complication of the puerperium. Out of fourteen recorded cases all occurred in the first week after labour. In all thick and broad pieces of the muscular coat of the uterus exfoliated. In one instance the exfoliation extended through the whole thickness of the uterus, including the serous

coat. In the author's two cases the first occurred in a woman aged 28, prolapse of the funis occurred, and the forceps had to be used. Puerperal diphtheria followed, diphtheritic ulcers forming in the vagina. Douches of boracic acid solution and other remedies brought the patient out of a desperate condition. On the twentieth day, when the patient was convalescent, something was seen to be hanging out of the vulva after the use of the douche. It was found to proceed from the cervix, and was easily extracted with a pair of dressing forceps. It proved to be a piece of the uterine muscular tissue,  $2\frac{3}{4}$  inches long, and  $\frac{3}{4}$  of an inch thick in the middle. After discharging this fragment the patient made a rapid recovery. The second patient was 23, and labour was normal, but on the second day the fundus was tender to pressure, the lochia rather scanty and fetid. There had been slight laceration of the perinæum, which was promptly painted with tincture of iodine; by the second day an ulcer spread an inch upward from the perinæum over the vaginal wall. On the third day abdominal pains set in with tenderness in the hypogastrium and loins. During the next few days the patient got worse; the fundus rose nearly 4 inches above the level of the pubes, and was very tender. Salicylate of soda in 30-grain doses was given. On the sixth day the patient was collapsed, the temperature to  $96.5^{\circ}$  Fahr., the pulse to 80. Alcohol was given. Fever set in again, but ceased about the twelfth day. The patient did not rise from her bed till the thirty-first day. On the thirty-sixth a substance fell painlessly from the vagina as she lay in bed. She left the hospital well at the end of seven weeks after labour. The discharged piece of uterine wall was over 3 inches long and  $1\frac{1}{2}$  inch broad. The author asserts that metritis dissecans is always due to infection. Micrococci have been detected by Grammatikati and others. Dr. Garrignes believes that in pre-Listerian days such cases would have developed into Boer's "putrescentia uteri." His own eight cases of the disease occurred within eight months, at a time when he had reason to believe that the antiseptic regulations of his maternity were not properly carried out. As to allied diseases, the author has seen a fatal case of gangrena uteri partialis, with a characteristic yellow line of demarcation. The patient was 38 years of age, and died a week after labour; the disease seemed to be purely diphtheritic. The uterus reached high above the pubes, and the omentum adhered to it. Kubasson's endometritis dissecans is a disease unconnected with child-bearing; in it the endometrium is shed with but little of the muscular coat of the uterus. Markonnet's perivaginitis phlegmonosa dissecans is also non-puerperal; a portion



of the muscular coat of the uterus came away in that observer's cases, but only from the vaginal part of the cervix in connection with adjacent inflamed vaginal tissues.

## **2. Antipyrin in puerperal pyrexia.**

McBeath (*Lancet*, Nov. 22, 1890) refers to four cases of puerperal fever where he obtained the most satisfactory results by the exhibition of antipyrin in 10-grain doses. For the first six hours the drug was given every hour, but afterwards every three or four hours. Each powder was administered in two teaspoonfuls of brandy slightly diluted with water.

## **3. Acute goitre during the puerperium.**

McDonogh Ellis (*Brit. Med. Journal*, Nov., 1890) mentions a case of acute goitre occurring during the puerperal period. On the twenty-first day after delivery the left lobe of the thyroid gland swelled up till it was the size of a Tangerine orange. This condition was accompanied by malaise, bearing-down pain in the region of the sacrum, and a return of the red uterine discharge. On the following day the right lobe of the thyroid commenced to swell, but never became as large as the left. A paint containing equal parts of belladonna and glycerine was applied over the swelling together with hot fomentations, and in a few days the pain and tenderness disappeared, the temperature became normal, and the uterine discharge ceased. The swelling of the gland did not commence to subside till ten days later, but at the end of two months it had entirely gone. Similar conditions have been observed during pregnancy, but the disease is rare after delivery.

## **4. Tetanic spasms during the lying-in period.**

Markus (*Prager Med. Wochenschrift*, No. 21, 1890) describes a case in which a woman, aged 38, the mother of two children, was delivered of twins in a room where her husband, a rag dealer, kept his unsavoury wares. On the ninth day after delivery she began to sicken, and was brought into hospital with trismus, salivation, dysphagia, foul uterine discharge, and subinvolution. The parametric connective tissue was free from deposit, there was no affection of the sensory centres, the temperature was low, and the pupils reacted freely to light. The urine contained a trace of albumen. Fever, dyspnœa, and tetanic contractions of the muscles at the back of the neck set in, and the patient died on the second day after admission. Prof. Chiari performed the post-mortem examination, and noticed icterus, septicæmia, necrotic endometritis, recent thromboses of the right ovarian plexus and enlarged spleen. An emulsion of the substance of the patient's medulla injected into a guinea-pig did not cause spasms. The author thinks that the endometritis was the

beginning of all the morbid phenomena in this case. The diseased endometrium formed a stratum for the development of products of decomposition, which led to the formation of ptomaines. Leisberg, basing his opinion on researches by Brieger, believes that puerperal tetanus is due to the absorption of ptomaines.

#### **5. Sulphate of copper as an antiseptic.**

Tarnier (*Journal de Méd. de Paris*, Sept., 1890) upholds strongly the use of a solution of sulphate of copper as an antiseptic in midwifery. He prefers a half per cent. solution of the sulphate in distilled water. From experience he finds that he can employ an injection of this strength without causing any pain to the lying-in women. Another recommendation is that a solution of this strength does not irritate the hands of midwives and nurses. He is convinced that sulphate of copper is a perfect antiseptic.

#### **6. The use of arsenite of copper for the relief of after-pains.**

Boardman (*New York Times and Regist.*, Dec., 1890) praises the use of arsenite of copper for the relief of "after-pains." A woman, aged 32, had persistent and severe after-pains following her fifth confinement, pains which resisted all the usual remedies. The trouble had persisted for five days, and seriously interfered with both rest and nutrition. Deeming that a salt, which was valuable in the treatment of colic, might be of service in the spasms of uterine muscular tissue, he ordered the drug in doses of one-thousandth of a grain every half-hour. Relief was rapid and complete. In a second case relief was even more rapid; morphine had, as in the first case, been administered with unsatisfactory result. Two tablets containing one two-hundredth of a grain in each were dissolved in a small half-tumbler of water, and one teaspoonful was given every half-hour. In a third case, where the drug was given in the same proportion as in the first case, relief was also prompt. In this last case opiates were contra-indicated, owing to the diseased condition of the patient's kidneys. A fourth case, under the care of Dr. W. B. Stewart, was also cured of after-pains by doses of the pure salt. Two other cases, however, derived no benefit from arsenite of copper, but were completely relieved, one by morphine, the other by chlorodyne. In these cases there was some doubt as to the condition of the drug supplied, so the failure to relieve may have been capable of explanation.

#### **7. Extirpation of cancerous uterus after delivery.**

Löhlein (*Centralbl. für Gynäk.*, March, 1891) gives the notes of



a case of cancer affecting the uterus of a pregnant woman. The patient was 43 years old, and had a hard mass of cancerous growth invading the posterior lip of the cervix. At the time of her labour every preparation was made to perform abdominal section in case the cervix should prove undilatable, but pains came on strongly, and with the help of forceps, delivery was safely accomplished on November 20th, 1890. There was no trouble from post-partum hæmorrhage. On December 5th the cancerous mass was scraped away as completely as possible, and on December 18th the uterus was removed *in toto*. No serious symptoms followed, and the patient went home on the 31st of December in good health.

#### **8. The use of the curette in puerperal endometritis.**

Two papers on this subject are quoted. The first appeared in the volume of last year, but it suggests a treatment of so important a character that it has been thought well to refer to it again. Three points at once suggest themselves for consideration: (1) in cases in which the endometrium is alone infected, cannot perfectly satisfactory results be obtained by the use of intra-uterine irrigation with perchloride of mercury solution? (2) should the disease have spread into the Fallopian tubes, is there not a risk of causing an extension of the disease into the peritoneal cavity by the manipulations necessary in the process of curettage? and (3) is there not a great risk that the softened uterine tissue may be perforated by the hard curette, if the operation is performed by hands not accustomed to intra-uterine manipulation? Such a proceeding as that advocated in the paper by Prof. Braun von Fernwald may be perfectly safe in such skilful hands, but should the practice become a recognised mode of treatment in the practice of men less versed in uterine surgery, it is to be feared that deaths from perforation of the uterus will not be infrequent. There are already numerous records of perforation of the wall of the non-gravid uterus by the catheter during the administration of the uterine douche; how much more in the case of the recently pregnant organ?

Braun von Fernwald (*Arch. für Gynäk.*, vol. xxxvii., 1890) advocates the antiseptic scraping of the uterus in puerperal endometritis. This practice was adopted for sapræmic endometritis of childbed in 101 cases out of 7,600 lying-in patients; ninety-six of these cases were cured and five died, but three out of these five had already symptoms of general septic infection; a fourth died of purulent peritonitis attributed to escape of pus out of the ostia of the tubes and the fifth sank from hæmorrhage with

septic symptoms ten days after the scraping. In over two-thirds of the 101 cases the labour had proceeded normally, and there had been no visible evidence of any damage to the placenta, yet the curette never failed to bring away necrosed and putrid tissue, which the microscope showed to be fragments of placenta or decidua. The procedure is only to be undertaken in cases of rise of temperature in childbed, due to endometritis. This complication can be recognised by distinct arrest of involution of the uterus, fœtor of the lochia, and fever coming on early in the puerperium without evidence of pelvic inflammation outside the uterus. When signs of such extension of the inflammatory process are present, and above all, where general infection is evident, scraping is clearly contra-indicated. A rise of temperature sometimes occurs in the first week after the use of the curette, but there was never any parametric exudation. The blunt curette is employed, the patient resting on her side. The uterus is washed out with a 1 in a 1,000 solution of thymol before and after the scraping. A thick iodoform point is left in the uterus. Any abrasions of the vaginal mucous membrane are painted over with pure tincture of iodine. The cervix and vagina are plugged for twenty-four hours after the scraping with iodoform gauze.

Dorr (*Archiv. de Gynéc.*, May, 1891) does not place much confidence in the curette and irrigation with sublimate solution. He prefers to cleanse the uterine cavity with iodine. Although solutions of the latter drug are not the most powerful germicides, yet their wide range of curative powers in removing products of inflammation and healing sores make them preferable for application to the uterus in these cases. Iodine suppositories are not always satisfactory. The author prefers the simple vaginal wash with compound tincture of iodine (1 drachm to the pint of water), the irrigation being repeated every six or eight hours. When, however, the symptoms of fever persist in spite of irrigation of the uterus and antipyretics, a small incision should be made in the abdominal walls, and two fingers should be passed into the abdominal cavity. Then a good stream of warm boracic lotion must be introduced through a tube and allowed to run in by means of a syphon apparatus, so that the abdominal cavity may be well and thoroughly washed out.



## VIII.—THE INFANT.

**1. Life-saving methods in still births.**

W. T. Lusk (*Americ. Journal of the Med. Sciences*, Feb., 1891) treats of the life-saving methods in still births. He briefly discusses the cause of the first respiratory movements of the child, and expresses the opinion that it is doubtful whether Engstrom's experiments for Preyer proved that inspiratory acts could be produced by peripheral stimuli, so long as the placental circulation is capable of exciting the respiratory centre without the aid of peripheral stimuli, and that the latter were capable of exciting the respiratory act before the internal stimuli (increased venosity) had increased sufficiently to do so, were points proved by Engstrom's experiments, which thus give a partial explanation of the well-known fact that external stimuli may be able to excite respiratory movements when the venous condition of the blood alone fails to do so. Dr. Lusk distinguishes two degrees of asphyxia at birth; in the milder, muscular tonus is preserved, and the head does not droop; the skin is dusky red, or cyanotic, the conjunctivæ injected, the umbilical vessels congested, the heart acts slowly but forcibly, and reflex movements are easily produced by surface irritation; in such cases spontaneous respiratory movements often occur. In the severer cases muscular tonus is lost, so that the head and limbs droop; the skin is pale and cold, the eyes are glazed, reflex movements cannot be induced, the heart's beats are slow and infrequent, and the umbilical vessels nearly empty. The indications for treatment are to clear out the air passages, to restore the irritability of the medulla, to increase the force of the heart's contractions, and to relieve the plethora of the heart and thoracic vessels. In the severer cases the child should be laid on a table and warmly covered, the fauces cleared with the finger, and, using it as a guide, a No. 8 gum elastic catheter should be passed into the trachea, and matters aspirated into the lungs during the ineffectual attempts at respiration removed by suction; for this purpose it may be necessary to introduce the catheter several times. Through the catheter insufflations should also be made, and after each insufflation the chest should be compressed with the hand. When occasional spontaneous respiratory movements begin to be noticed, Sylvester's method may be employed, the tongue being pulled well forward. As soon as the heart movements become plainly perceptible the child should be placed in warm water, and the face sprinkled with cold water. The swinging method of Schultze should be employed to complete the establishment of the normal circulation. Schultze's

method of artificial respiration, which Dr. Lusk recommends also in the milder cases from the beginning, is thus performed :—The child is grasped in such a manner that the operator's thumbs rest upon the anterior thoracic wall, the index fingers are in the axilla, and the three others are placed diagonally across the back ; the operator then allows the child to hang down face upward at arm's length between his knees. In this position the capacity of the chest is at its maximum (inspiratory position), for the pectoral muscles draw the upper ribs upwards, the abdominal muscles draw the lower ribs down, and the weight of the liver pulls down the diaphragm. The child is next swung upwards until the operator's arms are nearly horizontal. The swing is then stopped, the head falls downwards, the lumbar spine also is flexed, and the lower limbs fall towards the operator until the whole weight of the child rests on his thumbs. In this way the chest and abdomen are compressed, the diaphragm is forced upwards, and an efficient expiration results. Further, a certain favourable effect is also produced on the circulation, for during the upward swing the blood is pressed from the left ventricle into the aorta, and from the right auricle into the right ventricle ; the surplus blood from the right ventricle finds its way through the ductus arteriosus into the left aorta. At the same time the emptying of the left ventricle favours the flow of blood from the left auricle, and permits the return current from the pulmonary veins. With the downward inspiratory swing blood is aspirated into the thorax from the great veins (reflux from the aorta being, of course, prevented by the semilunar valves). By alternating the downward and upward swings, not only is respiration, but also the pump action of the heart, artificially imitated, and the feeble systole is reinforced.

## **2. The treatment of pyrexia in newly-born children.**

Eröss (*Jahrbuch für Kinderheilkund.*, Band xxxii.) gives the result of a careful study of the value of antipyrin, chinin, and lukewarm baths in the treatment of pyrexia occurring in new-born children. In the obstetric and gynecological department of the University of Buda-Pesth he found that of 956 children 431 suffered from pyrexia during the first ten days of life, a percentage of 45·08. In 145 the fever was of very short duration, in 102 the children were feverish for several days, but the temperature was very irregular, and there were intervals during which it was normal ; in 184 the fever was continuous, ending in some cases after several days in the death of the patients. The fever in these 184 cases depended upon a variety of causes. In 44·5 per cent. it was due to gastro-intestinal derangements, and in 34·2



per cent. to inflammation originating in connection with separation of the umbilical cord. Antipyrin was given in doses of 5, 10, or 15 centigrammes ( $\frac{3}{4}$  to  $2\frac{1}{4}$  grains), repeated in an hour if the first dose did not produce the desired antipyretic effect. The full antipyretic effect was, as a rule, produced in from one to two hours, and the temperature remained reduced for four or five hours altogether. The lowest temperature observed in the 52 cases thus treated was  $97.1^{\circ}$  F. The drug also markedly lessened the rapidity of the pulse and respiration, and its diaphoretic action was also well marked. The degree and duration of the fall of temperature were less when the pyrexia was due to septicæmia than in other cases. The action of chinin, given in doses of 5 or 10 centigrammes, or in severe cases 15 centigrammes, resembled that of antipyrin, with this difference that the temperature began to fall somewhat later and remained depressed rather longer. Lukewarm baths were found to give much more satisfactory results. In a previous communication to the *Jahrbuch* (1886), Dr. Eröss showed that a bath at  $27^{\circ}$  to  $30^{\circ}$  C. for ten minutes caused a very marked reduction in the temperature of healthy new-born children. In children of the same age suffering from fever, a bath at  $27^{\circ}$  to  $28^{\circ}$  R. ( $93^{\circ}$  to  $95^{\circ}$  F.) was found to produce very considerable lowering of temperature; the fall was very rapid, amounting on the average to  $3.1^{\circ}$  C. ( $5.6^{\circ}$  F. nearly). At the end of the bath, which lasted ten minutes, the fall continued for half an hour or an hour longer. The smallest fall noticed was  $2.10^{\circ}$  C. ( $3.8^{\circ}$  F. nearly), the largest was  $5.0^{\circ}$  C. ( $9^{\circ}$  F.). The case in which this large fall occurred was suffering from septicæmia; the temperature before the bath was  $41.3^{\circ}$  C. ( $106.3^{\circ}$  F.), in one hour after the bath it was  $36.3^{\circ}$  C. ( $97.3^{\circ}$  F.), but in four hours more it was  $40.0^{\circ}$  C. ( $104^{\circ}$  F.), and went higher later. Dr. Eröss did not observe symptoms of collapse in any of his cases, but, in order to avoid such an occurrence, he recommends that the bath should last only five minutes instead of ten if the child is much reduced or of weakly constitution, or if the fever is not very high (not over  $104^{\circ}$  F.). The difference in the action on septic and non-septic fevers was less marked than with antipyrin and chinin, and in some instances the converse held. The effect of the baths on the general condition was very satisfactory. Restlessness, whining, sleeplessness, the symptoms of depression, somnolence, apathy, and indisposition to such disappeared; the pulse and respiration fell, the child slept for an hour or two, and on awaking took the breast well, or at least better than before. As to the general results of systematic antipyretic treatment in new-born infants, Dr. Eröss believes them to be favourable. The

treatment exercises a favourable influence on nutrition, in that during the apyrexial periods the child sucks better, and in that during these intervals the waste of the tissue is in some degree checked. Dr. Eröss points out the special value of the bath in cases where the temperature is found to be very high, or even hyperpyrexial, at the first visit; the rapid action of the bath is then most desirable.

### 3. Visceral hæmorrhages in the fœtus.

Spencer (*Obstet. Soc. Tracts*, London, 1891) gives a detailed account of a consecutive series of 130 necropsies on fresh, mostly stillborn fœtuses, in so far as congestion of, and hæmorrhage into, the viscera were concerned. Tables of the more important organs affected were appended. The main part of the paper consisted of a description of the naked eye and microscopic appearances of the various viscera as regards congestion and hæmorrhage. The causation of the hæmorrhage was discussed, and the following practical conclusions were drawn:—

1. In children stillborn, or dying shortly after birth, congestion or œdema, and hæmorrhages were usually found in various important viscera.

2. These hæmorrhages occurred in cases delivered naturally or by version, or by forceps, through normal and abnormal pelvis; in primiparæ and multiparæ; with large and small children; in "easy" and difficult, rapid and prolonged labours.

3. The hæmorrhages were, however, most frequent and most severe in children subjected to much pressure by the parturient canal, or instruments, or the hand of the attendants, especially when delivered by the lower extremity.

4. Cerebral hæmorrhage was more frequently found in still-born children delivered by the forceps than in those born by the breech, and in these latter more frequently than in those born naturally by the head.

5. Hæmorrhage into most of the other viscera was more frequently met with in pelvic than in cephalic presentations.

6. These hæmorrhages, and the accompanying injuries, were in many cases the cause of the stillbirth, and, when not immediately fatal, might be followed by the gravest consequences.

7. They were most likely to be avoided by preventing premature rupture of the membranes, by artificial dilatation of the parturient canal (when necessary), by restricting the employment of version and other artificial manipulations to urgent cases, and by preferring cephalic to podalic version in cases suitable for the former.

8. The use of the forceps should be absolutely limited to cases



in which there existed some pressing danger to mother or child, and it should never be employed merely to shorten the time of labour.

9. In breech presentations, examination of the genital organs of the child should be carefully avoided during delivery. As soon as the child's limbs were born they should be wrapped in a thick layer of antiseptic wool (which keeps the child warm, prevents the hand from slipping, and protects the limb from pressure). If traction were necessary, it should be made over wool wrapped around the child's limbs or pelvis; it should never be made by the hand around the child's waist.

10. In delivering the after-coming head, care should be taken that the sterno-mastoid muscles were not unduly stretched or pressed upon. When the after-coming head was in the pelvis, where there was even slight difficulty, recourse should be had to the forceps to deliver.

#### **4. Hæmorrhages in new-born infants.**

Townsend (*Boston Med. and Surg. Journal*, Aug., 1890), referring to the hæmorrhages which occur in newly-born infants, says:—"A baby, often well-developed and apparently healthy, is observed to vomit a little blood or bloody mucus on the second or third day of its life, and the stools about the same time are found to contain blood. The navel is apt to bleed about the same time, and blood will ooze continually from any slight crack or abrasion of the skin; epistaxis and bleeding from the mouth may also occur, and ecchymoses of greater or less extent may appear under the skin. Jaundice is frequently seen at first, succeeded by pallor from the loss of blood; the temperature may run up to  $106^{\circ}$ ; death or recovery generally occurs within three or four days. The prognosis is bad, the mortality being 78 per cent.; it is best where the hæmorrhage is confined to the alimentary tract, worst where the skin is involved as well as the mucous membranes; the longer the baby lives, the better its chances of recovery. As regards etiology, the cases must not be supposed to be instances of true hæmophilia, as that malady is very rare in the first year of life, and infants who recover do not prove to be bleeders. It has been suggested that it is due to a form of puerperal septicæmia; but this is not supported by such evidence as is obtainable, though there are some arguments of value in support of the view that it is of an infectious nature. It is doubtful whether internal treatment is efficacious; externally, pressure should always be tried when possible."

#### **5. Induration of the sterno-mastoid in new-born infants.**

Quisling (*Centrab. für Gynäk.*, Jan., 1891) writes on the in-

duration of the sterno-mastoid in new-born infants. He has himself observed five cases; in four, the right sternocleido-mastoid muscle was the seat of the affection; in one, the left. In all five cases the presentation had been pelvic. The author further collected two cases in which the induration was in the left muscle and the presentation pelvic, and two in which the induration was on the same side and the head presented, the child being delivered without the aid of art in each case. In most cases the induration is purely traumatic, but hereditary syphilis and other morbid conditions in the child may predispose to the injury. In pelvic presentations, it is chiefly the muscle on the side which lies most forward, in head presentations that on the side which lies posteriorly which is injured. The original injury is simply laceration, but the induration, which first attracts the attention of the mother, nurse, or physician, is, according to Dr. Quisling, myositis, or reactionary inflammation around the torn fibres. The child must be watched for some time after the subsidence of the injury, as wry-neck has been known to follow induration of the sterno-mastoid. Massage and resolvent applications are needed in the earlier stages of this affection.



## DISEASES OF THE SKIN.

By MALCOLM MORRIS, F.R.C.S.E.,

Surgeon to the Skin Department, St. Mary's Hospital.

### 1. On the treatment of eczema in elderly people.

Bulkley (*N. Y. Med. Journ.*, 1890) says that local causes play a very insignificant part in the production of the disease, which in a large number of instances develops without any particular exciting or even predisposing cause. He considers the chief elements of causation are to be found in a debility of tissue, rendering it liable to an inflammatory or degenerative action. As an early internal cause, he mentions faulty kidney activity. In these cases the urine is usually scanty, though there may be frequent micturition; the specific gravity above the normal, and presence of urates not infrequent. Not uncommonly sugar is found; occasionally, however, as a transient and removable condition. Deficient bowel action commonly exists.

Attention to these conditions is particularly necessary in the treatment of such cases, and tonic measures are often required. For the bowels he recommends at first a pill of blue pil., colocynth, and ipecac., but for more common use the pil. fer. et aloes. For insufficient kidney action, the acetate of potash in a bitter infusion. Arsenic is rarely required or of value, except when a bullous or pemphigoid condition exists. Quinia is often of great service as a tonic, and for its anti-malarial effect. Strychnia and phosphorus are occasionally useful. Sedatives are very necessary to ensure rest. He recommends phenacetin in 5-grain doses, anti-febrin 6 grain, tinct. gelsemini gtt. 10 to 20, combined with tinct. aconiti gtt. 1. Bulkley strongly advises no alcohol in these cases of eczema, and says that the patients are more easily cured when it is not taken. Especially bad are sweet wines, champagne, beer, porter, etc. As far as diet is concerned, an ordinary healthy mixed diet is allowable. For local treatment he recommends a lotion of calamine and oxide of zinc in water, to which  $1\frac{1}{2}$  to 3 per cent. carbolic acid may be added. To increase alkalinity, he adds borax, or carbonate of magnesia; or, to render it more astringent, from 3 to 6 per cent. of salicylate

of soda. When there is much thickening and pruritis, the ungt. picis, diluted with ungt. oxid zinci, in various proportions. For the head and face, an ointment of tannic acid  $\mathfrak{z}$ i, carbolic acid grs. 10 to 20 in  $\mathfrak{z}$ i of ointment. He has not found ichthyol or resorcin of value or beneficial.

Bulkeley advises against use of water as much as possible. Baths, however, containing starch or gelatine (lb. 1 to 2 in water 30 gallons), or alkaline baths, often are beneficial.

In conclusion, he says that the disease is curable, and often yields more readily to treatment in the elderly than in younger persons.

## 2. Treatment of eczema in children.

For the treatment of eczema on the face and scalp, so often occurring in fat children, Saalfeld (*Journal des Maladies Cutan. et Syph.*) recommends lessening the quantity of food, especially the fatty portions of the diet, and, to prevent habitual constipation, the use of suitable enemata.

The crusts which cover the face and scalp should be first softened by a little olive oil, and when they have been removed, the parts can be rubbed with a pomade composed of the following:—

R Acid. Boracic ...	...	...	...	...	3 parts.
Zinci Oxid ...	...	...	...	...	10 "
Vaselin...	...	...	...	...	"
Pulv. Amyli & a	...	...	...	...	60 "

If it be general eczema of a scrofulous nature, the food must be improved, the digestive organs carefully attended to, and insufficient nourishment increased by giving cod-liver oil in combination with phosphorus or arsenic. The local treatment must be limited to the use of vaseline and keeping the skin well powdered. In short, the author deprecates the use of tar in the treatment of different forms of eczema, as it is very irritating to the skin of young children. In most cases tar can be replaced by the use of the following ointment:—

White precipitate...	...	...	...	...	1 part.
Balsam of Peru ...	...	...	...	...	5 "
Wilson's Ointment	...	...	...	...	30 "

## 3. Treatment of chronic eczema by creolin.

Dr. R. Glasgow Patteson (*Dublin Journ. of Med. Sciences*, July, 1891) recommends the treatment of chronic eczema by creolin lotion, of the strength of  $\mathfrak{z}$ j. to aqua  $\mathfrak{z}$ viii. The parts affected, having been freed from crusts or other accumulations by appropriate means, should be freely bathed in the fresh emulsion for from ten to fifteen minutes. If the disease is in the acute stage, or if there is much secretion, lint soaked in the liquid may be applied over the parts and retained in position by suitable dressings. But if the



eczema is of the squamous type, treatment in the intervals is best carried out by means of ointments—that which has yielded in his hands the best results being one composed of zinc oxide, white precipitate, and the glycerine of the subacetate of lead. Under this treatment, recent cases recover with astonishing rapidity, and even cases of long standing soon show signs of improvement which go on to complete and permanent recovery.

#### **4. Treatment of lupus vulgaris by Koch's tuberculin.**

When the report was written last year, we were in hopes that a remedy had been found for tuberculosis. Yet, in spite of the real improvement produced by tuberculin in lupus vulgaris in many cases, time has proved that the improvement was only temporary. Of the twelve cases in which I tried it fully, there is not one which has not relapsed to a condition as bad as before the treatment. I give now a very brief *résumé* of the results obtained by Mr. Watson Cheyne, Dr. Crocker, Prof. Kaposi, of Vienna, Dr. Unna, of Hamburg, and the Physicians of the St. Louis Hospital, Paris.

Mr. Watson Cheyne gives an abstract of ten cases of lupus treated with tuberculin up to the end of April, 1891. Two had been under treatment too short a time to be of any value; both are steadily improving. In the remaining eight cases, improvement occurred at first, and in some it was very considerable; in one there is hardly any disease to be detected. In four of these eight the improvement is maintained or increasing. In one the improvement had come to a standstill, although there was a good deal of lupus tissue present. In three, after the improvement had gone on to a considerable extent, it came to a standstill, and now shows a distinct tendency to relapse; but in none is the disease nearly so bad as before the treatment was commenced.

Dr. Radcliffe Crocker, in speaking of the effect of tuberculin in lupus, said that the great drawback was that "it seemed to stop short just where one hoped it would go on." He thought that in lupus it would be looked on only as a supplementary treatment which would not replace other methods.

Kaposi, of Vienna (*Ueber die Behandlung von Lupus, Lepra und anderen Haut-Krankheiten mittelst Kochischen Lymph*), had treated fifty cases of lupus by means of injections of tuberculin. His judgment on the value of tuberculin can be thus expressed:—Koch's lymph is no curative remedy for lupus, but only an agent similar to all other remedies and ways of procedure, with which one by a judicious selection can always secure fine results, and among which tuberculin may be classed. Kaposi recommends the employment of tuberculin in cases of recent freely proliferating

and widely-spreading or greatly disseminated lupus; "for there is," says Kaposi, "no other known agent which, like this, injected into any part of the surface, attacks all the foci of lupus, causing them to inflame and flatten down. This is such an advantage gained, that we should do wrongly to discard it, for we succeed in this way in improving all the lupus foci to a considerable degree."

Dr. Unna, in an address delivered before the Medical Society of Hamburg, March 31, 1891, comes to the conclusion that the treatment of lupus by tuberculin is distinctly indicated in the following:—

1. In the case of very extensive multiple lupus foci; because with these cases much can be gained with one blow by this method, while all the external methods of treatment of these cases have many drawbacks.

2. With all the forms of lupus fibroma, especially of such as are complicated with ectropion of the eyelids and lips, occlusion of the nostrils, contraction of the joints, etc.

3. With lupus of the auditory canals and the outer ear, as the disease in these situations is the least accessible to the hitherto employed remedies.

4. Whenever it is required to distinguish with certainty the lupus fibroma from the genuine scar, or when it is necessary to recognise plasmoma nodules in scars.

In these cases I should not like to abandon Koch's treatment, at least not until we can replace it by one still more efficacious and milder. Till then our endeavour must be to effectually supplement his method.

The conclusions arrived at by the St. Louis Hospital Commission consisting of Drs. Vidal, Besnier, Fournier, Hallopeau, Quinquaud, and Tenneson, appointed to consider the influence of Koch's lymph for the treatment of cutaneous tuberculosis and particularly lupus, were not favourable. They observed (1) that in some cases the general reaction was so intensely alarming that death had been imminent; (2) in eight cases congestion of the lungs had resulted; (3) in two cases hæmaturia; (4) in four cases albuminuria; (5) in five or six cases severe cardiac symptoms. They also pointed out the great irregularity of the lymph.

The principal conclusions of the report may be drawn from the result of the thirty-eight cases subjected to this treatment. The cases give the following results:—Not one case was cured, not one case even nearly cured, and scarcely a visible improvement in any. On the contrary, twelve results nil, the lesions remaining as before, and eighteen very slightly improved. After such results, is it legitimate to persevere in the use of the lymph,



in spite of such risks, and causing such serious symptoms, with even the danger of a fatal issue? The report of the Commission answers this question in the negative.

The treatment by this method only secures very small results as compared with those obtained by the old treatment. These results also vary a great deal, and no effects are certain. Under these conditions the doctors of St. Louis will discontinue the use of Koch's lymph and return to the old methods of treatments.

### 5. Treatment of lupus and scrofuloderma.

Dr. Brooke (Manchester), in the *Brit. Journal of Dermatology*, May, 1890, and Dec., 1891, indicates a form of treatment which he has found of great service in many cases of lupus and ulcerating "scrofulous glands."

The formula of the ointment recommended is

R	Acidi salicyl	...	...	...	...	
	Zinci oxidi	...	...	...	...	āā ¼ oz.
	Ichthyolis...	...	...	...	...	20 m.
	Hydrarg. oleatis (5 per cent.)	...	...	...	...	15 gr.
	Ol. lavandulæ	...	...	...	...	q.s.
	Amyli pulv.	...	...	...	...	½ oz.
	Vaselini albi	...	...	...	...	1 „

This must be kept continuously in contact with the morbid tissues. If there are open wounds it may be applied on lint, but it is much more decisive in its action if it can be *well* rubbed in twice daily. Should pain or soreness be caused, the strength of the ointment should be at once reduced by the addition of lanolin and zinc ointment, and where there is inflammation more ichthyol should be added. If the area of disease cannot be kept covered over, as, for example, on the face, the ointment may be readily coloured by the addition of red bole and raw umber so as to match the colour of the normal skin.

After the amount of disease has been considerably reduced, the treatment should be accelerated by touching the remaining tubercles with pure carbolic acid or lysol every second or third day, or, if small, they may be bored out or touched with the galvano cautery.

This method is not recommended as a substitute for all other forms of treatment, but rather for those cases in which operation is impossible or very inconvenient, and for timid patients. It has given excellent results in very extensive areas of disease, and has the merit of being painless (except, of course, the momentary pain from the caustics), and of not interfering with the patient's occupation.

## 6. Treatment of lupus erythematosus of the eyelids and face.

Brocq (*Rev. d'Ophthalmol.*, 1890, 9, and *Con. Méd.*) recommends the application of a pomade composed as follows :—

R	Acid salicyl	...	...	...	...	3ss.
	Acid lactic	...	...	...	...	3ss.
	Resorcini	...	...	...	...	gr. 45
	Zinci oxid	...	...	...	...	3ii.
	Vaselin. pur.	...	...	...	...	3xvii.

M.S.A.

The following preparation is also well-borne, as a rule :—

R	Acid salicyl.	...	...	...	1 part.
	Acid pyrogal	...	...	...	2 parts.
	Vaselin. pur.	...	...	...	20 "

This latter is applied during the night. During the day it can be substituted alternately by the former preparation.

## 7. The treatment of dermatitis herpetiformis.

Duhring (*American Journ. of Med. Sciences*, Feb., 1891) says in many cases no remedy appears to have any beneficial effect. It is necessary to look for a possible cause, and treat the case then on principles applicable thereto. There is no hope of a speedy cure. In regard to local treatment, it must be remembered that the disease is multiform in character, and what may suit one stage or form may be detrimental to others. The erythematous is most difficult to control, and requires milder means than the vesicular or bullous. Soothing preparations, as boric acid, calamine, and oxide of zinc lotions, etc., are useless. The best applications are revulsive stimulants, as tar in various forms, carbolic acid and sulphur, thymol, ichthyol, etc. The most valuable is sulphur ointment—two drachms to the ounce. It is most useful in the vesicular and bullous varieties, but usually irritating in the erythematous. It must be well rubbed in. Weak solutions of tar prove most efficacious in the erythematous variety, relieving the itching. Baths relieve only at the time.

Of internal remedies, there are none that have much influence. Arsenic sometimes appears to do good, but usually is disappointing. Tonic treatment, as a rule, does not appear to exercise any influence. Moral and hygienic treatment may be used to counteract the physical and mental depression which are conspicuous features of the disease.

## 8: Treatment of warts.

Kaposi recommends the following for the removal of warts :—

Perchloride of mercury	...	...	...	1 part.
Flexile collodion	...	...	...	30 parts.

To be applied once daily upon the wart and round its base.



### 9. Treatment of horny thickenings of the palms and soles.

Dr. Brooke (Manchester), in the *Brit. Journal of Dermatology*, Jan., 1891, in speaking on various forms of keratoses of the palms and soles, refers to the different methods of attacking the overgrowth of horny tissue which forms the one symptom which is common to a number of affections which are liable to involve these regions. Of these may be instanced eczema, syphilis, lichen planus, psoriasis, tylosis, ichthyosis, keratoma palmare et plantare (hereditarium), pityriasis rubra pilaris, chronic arsenic poisoning, keratoderma symmetrica, and certain cornifying erythemata of rare occurrence. The thickened beds of epithelium often present so few points of distinction that a differential diagnosis of their cause, unless aided by signs of disease elsewhere, becomes almost impossible until the underlying structures are brought more clearly into view, and the nature and arrangement of the primary lesions are exposed for examination. Both for this purpose and with the object of removing what is otherwise a barrier to the action of the remedies which it is desired to employ, it is important to clear away at once as much of the dense epithelial layer as possible.

Of the various means which may be adopted the most generally applicable are gutta-percha plasters containing salicylic acid, or, better still, salicylic acid and creasote, the creasote relieving the pain which the salicylic acid not unfrequently causes. The same end may be attained by painting the parts freely with a concentrated alcoholic and ethereal solution of salicylic acid (by which means penetration of the acid is secured), and laying over them a piece of india-rubber, or gutta-percha adhesive plaster as soon as the fluid medium has evaporated. Lint soaked in a 2 per cent. watery solution of resorcin, and covered with an impermeable dressing of oil skin or gutta-percha paper is often rapid and effectual. Salicylic ointments and pastes, though suitable for slighter conditions, are not sufficiently powerful in severe cases. Salicylic collodion when applied over a large surface forms a hard inelastic covering, which impedes movement and tends to form fissures.

As soon as the upper layer is softened it must be scraped away, and the application repeated until the lower layers come into view. Chrysarobin, pyrogallie acid, mercurials, tar, and other remedies may then be added to the keratolytic agents, according to the requirements of the special disease. When erythematous or inflammatory conditions are present the early addition of ichthyol (2 to 5 per cent.) is of great advantage. In all cases the treatment must be continuous and persistent.

**10. Alopecia areata.**

Dr. Badcliffe Crocker (Address to Brit. Med. Association, July 30th, 1890; *Lancet*, Feb. 28th, 1891) concludes from the analysis of 207 cases that the disease occurs most commonly in persons under twenty, comparatively frequently among those between twenty and forty, and rarely in those over fifty; it more frequently attacks males than females. He divides his cases into four classes:—

1. Case in which the disease is universal. This class is rare.
2. Baldness in one or more patches at the site of an injury to, or in the course of, a recognisable nerve. This class is comparatively rare.
3. Alopecia circumscripta seu obicularis (Neumann) characterised by atrophically depressed patches, which are small and often show a marked decrease in sensibility. These cases are very rare.
4. Numerically the largest class to which the old term *tinea decalvans* might be applied. The patches in this class commence most frequently on the back of the head; they are round and small primarily, but become irregular from coalescence of neighbouring patches. In most cases there are short club-shaped hairs which can be picked out easily and are quite characteristic of this class. They indicate recent extension.

He finds a few cases afford some fair grounds for being considered neurotic. With regard to contagion he mentions some good cases supporting the view that the disease may be conveyed directly from person to person, and he thinks that some cases have been contracted through contact with ringworm.

Dr. Prince A. Morrow (*New York Journal of Cut. and Genito-Urin. Dis.*, Oct., 1891) says with regard to the etiology of the disease, that from a theoretical point of view the parasitic theory is alone in harmony with our present knowledge of the essential rôle played by germs in the transmission of all communicable diseases. In two of his cases the disease was evidently transmitted from one to the other. The demonstration of the contagiousness of a disease carries with it strong presumptive proof of its parasitic nature. While admitting that an affection, indistinguishable in its clinical aspect and course from typical alopecia areata, may be caused by local traumatism, nerve lesions, mental shocks, neuralgias, and general nervous debility, the percentage of cases of undoubted nervous origin is very small. In the writer's opinion the vast majority of cases of typical alopecia areata are caused by a specific germ. What the microscopical characters of this germ are, or the conditions which favour its growth, are as yet unknown. The clinical facts pointing to the spread of the disease by contagion



are so numerous and well attested as to leave no possibility of doubt. Equally conclusive is the effect of prophylactic measures in arresting its spread by suppressing sources of infection, precisely as in the case of tinea tonsurans.

As to local treatment, all authorities are agreed that this should be one of stimulation. That the stimulating agents should be essentially parasiticidic is not deemed essential even by the adherents of the parasitic theory. In recent cases Morrow employs chrysarobin with or without the addition of salicylic acid, in traumaticin, or in the form of an ointment. The strength is: chrysarobin, 8 or 10 per cent.; salicylic acid, 2 to 5 per cent. in traumaticin or lard; to be applied every three or four days in sufficient strength to excite and maintain a moderate dermatitis. In more severe and extensive cases Morrow employs equal parts of acetic acid and chloroform or ether. Besnier uses in place of this:—

R Hydrate of chloral	...	...	...	...	5 grams.
Officinal ether	...	...	...	...	25 "
Acetic acid (crystals)	...	...	...	...	1 to 5 "

This application is repeated two or three times a week at first, and continued at longer intervals during the entire course of treatment. In the intervals between these applications Morrow uses a stimulating oil to be applied once a day, as follows:—Oil of eucalyptol, oil of turpentine, each half an ounce; crude petroleum, one ounce; alcohol, one ounce. The application of the oil to be followed by massage. At a later stage sulphur ointment or sulphur in combination with resorcin may replace the oil.

Dr. Moth, at a recent meeting of the Société de Dermat. and Syphilogr., advises the intradermic injection of corrosive sublimate, two to five hundred. The injections are made around each plaque, each injection being of four to six drops only. Aqueous solutions have been found best, and no nodes follow when water is used as a vehicle. The re-growth of hair is said to be more rapid than after other modes of treatment.

#### **11. On the value of antimony in various inflammatory affections of the skin.**

W. Allan Jamieson (*Brit. Journal of Dermatology*, Sept., 1891) draws attention to the comparative neglect of antimony, which offers so many points of analogy to arsenic, as a remedy in skin diseases. He reports the following instances in which marked benefit resulted from the employment of antimony. He treated cases of general exfoliative dermatitis, acute erythematous and moist eczema, acute eczema in a female of gouty family, dermatitis bullosa, and lichen planus, all with the best results. Antimony was not solely employed, but it was the only common feature in

the treatment of all alike, and there can be little doubt that it contributed materially to the rapidity of the cure. It was given in doses of one-eighth of a grain three times a day. Jamieson compares the action of antimony to that of pilo-carpine; both act on the sweat-glands as stimulants, both improve the nutrition of the skin. Taking Unna's view as correct that there is a correlation between the functional activity of the sudoriparous glands and the deposition of subcutaneous fat, one can understand how antimony can promote the augmentation of fat, and also improve the pliancy and unctuousness of the skin. It would at the same time reduce congestion, remove infiltration, and lessen the tendency to premature epidermic exfoliation.

It is well that Dr. Jamieson should call attention to the neglect of this important remedy. Several years ago in a paper read at one of the annual meetings of the British Medical Association I gave a strong opinion in favour of antimony in most of the inflammations of the skin. Since that time our knowledge has become more precise as regards the etiology of what have been called simple inflammations. It is in the cases in which the evidence points towards a functional nervous cause that antimony is most likely to be of use.

## **12. Ichthyol—a contribution to its therapeutics.**

T. Cranston Charles (*Lancet*, September 26, 1891), in an article under the above heading, draws attention to the great benefits derived from the use of ichthyol given internally as well as applied externally. Ichthyol contains 18 per cent. of sulphur. Combinations with one or other of the caustic alkalies can easily be formed; also with zinc, lead, or mercury. The sodium salt has the composition  $C_{28}H_{36}S_3Na_2O_6$ . The ammonium salt is the more common combination, and goes by the name of ichthyol. It has a marked bituminous smell and taste. It is readily mixable with oil, vaseline, etc., and is slightly soluble in ether, water, and alcohol, easily in chloroform or in a mixture of ether and alcohol; it is not easily decomposed. Its therapeutic value is due to the sulphur which is present partly in direct combination with the carbon, like the sulphur in mercaptan or organic sulphides, while the rest of the sulphur group is in close combination with the oxygen and renders the whole soluble in water and readily absorbable. By its continuous use we can introduce into the system a larger quantity of sulphur than by any other means. Ointments should vary in strength from 5 to 50 per cent., the stronger ones for use chiefly in gout, rheumatism, and neuralgia. The ammonium and lithium salts may likewise be given internally in pills containing one grain and a half, or in capsules containing



3 to 8 grain; also as an alcoholic ethereal solution containing from 10 to 30 per cent. of ichthyol. Ichthyol may be given internally up to 15 grains daily without any bad effect, but it is advisable to begin with small doses and gradually increase them. Experiments on animals have proved its use to be quite harmless, for in divided doses of 300 grains it only causes diarrhoea. Ichthyol being very oxidisable draws oxygen away from the tissues, so that it is a reducing agent; and at the same time it produces an invigorating and antiseptic influence throughout the body and an astringent effect on the vessels. Cumarin may be added to disguise its smell, while vanillin will disguise its taste. He agrees with Dr. Zuelzer, of Berlin, that by its use the disintegration of the albumens in the system is retarded, and their formation and accumulation favoured. He then quotes the following diseases—(1) burns, (2) erythemata, (3) herpes zoster, (4) eczema, (5) acne, (6) sycosis menti, (7) psoriasis, (8) pityriasis capitis, (9) prurigo senilis, (10) boils and carbuncles, (11) erysipelas, (12) rheumatism, (13) gout, (14) neuralgia, (15) contusion, (16) catarrhs—in which great benefit had been derived from its use.

I can confirm from extensive personal experience most of what Dr. Charles says in favour of the internal administration of ichthyol. I have used chiefly the ammonium salt. In acne rosacea at the change of life it is most valuable. Associated with this form of acne, there is usually gastric disturbance, constipation, cold extremities, and flushing of the face. All these symptoms are quickly mitigated and ultimately removed by ichthyol in gradually increasing doses. Again, there is no remedy that I know of that can be compared with ichthyol in chronic urticaria. In this disease I have found large doses are often required; indeed, before benefit was obtained in a most severe case, as much as 30 grains night and morning had to be administered for several days. The ultimate result was most satisfactory.

### 13. Ichthyol varnishes.

One great disadvantage in regard to the employment of ichthyol to limited areas of disease has been the impossibility of applying it in any way that was at once easy and efficacious. The pure drug, apart from its unsightliness and objectionable odour, will not dry, even if spread in a thin layer, but remains for hours moist and sticky, and the various combinations with dextrin, gum, and gelatine-glycerine paint have been found in practice to be inefficacious. Ichthyol collodium promised better, but the irritation which is caused by removing it is such as to more than counterbalance its beneficial effects. In the case of patients who are only able to follow out treatment at night, the removal of these firm

adhesive layers each morning, therefore, renders their employment impossible. In order to overcome this difficulty and to produce an impermeable layer of ichthyol, which could be easily and quickly removed without irritating the skin, Unna instituted a series of experiments in conjunction with Dr. Helmers, and arrived at the following formula, which he finds to answer his purpose fully :—

Ichthyol	...	...	...	...	40 parts (by weight).
Starch	...	...	...	...	40 parts.
Albumen solution, concentrated	...	...	...	...	about 1 to 1½ parts.
Water	...	ad. 100 parts	(i.e. about 20 parts).		

The constituents must be mixed in definite order, the starch must be moistened with the water, the ichthyol then rubbed well in, and, finally, the albumen must be added.

The concentration may be regulated by the thickness of the layer, the first application being wiped off with a moist cloth so as to leave the finest possible coating. Even a thick layer dries very rapidly, and can be washed off at any moment.

An ichthyol-carbolic acid varnish having the same properties can be made in a similar way, but, of course, with the omission of the albumen. The formula is :—

Ichthyol	...	...	...	...	...	25 parts.
Carbolic acid	...	...	...	...	...	2·5 "
Starch	...	...	...	...	...	50 "
Water	...	...	...	...	...	22·5 "

The ichthyol and carbolic acid are dissolved in the water in a gentle heat, and the starch then added.

The first preparation, *vernisiu ichthyoli*, is recommended in acne where the skin is irritable, in rosacea seborrhoica, and in rosacea simplex, in ulerythema centrifugum (one form of "lupus erythematosus"), intertrigines, tubercular eczema, seborrhoiceczema, and erysipelas.

It may with advantage be made a basis of other reducing and antiparasitic substances, such as chrysarobin (2 to 5 per cent.), which may in this form be applied with confidence to the face, pyrogallol, resorcin, and sulphur, for the treatment of parasitic diseases, such as certain eczemas and psoriasis. But in this case it is better to mix, for every quantity of new substance added, an equal quantity of linseed oil, which is at once a reducing agent and a rapid siccativ.

#### 14. Bassorin paste: a new base for dermatological preparations.

Geo. T. Elliot (*Journ. Cutan. and Genito-Urin. Dis.*, February, 1891) states that the characteristics of the paste, composed of bassorin, glycerine, water, and dextrin, are as follows :—



1. Bassorin paste is a perfectly neutral substance, which of itself produces no irritation whatever, and when used alone acts simply as a protective to the skin. It does not become rancid, or decompose or undergo change when kept for a length of time, unless it be exposed in an open vessel. When this is done, it becomes dry and hard, but even then rubbing it up with a little water renders it again as serviceable as at first.

2. It is easy and simple in application, requiring only to be spread upon the skin with the finger or a brush. It dries in the space of a few minutes if so applied, adheres closely, does not rub off and soil the linen, but forms a flexible coat, which does not interfere with the movements of the body. When its removal is desired, the preparation can be washed off with a little water or a damp cloth or sponge. It remains *in situ* without change for a variable length of time, depending upon the condition of the surface on which it has been applied.

3. With the bassorin paste almost any drug can be incorporated; those which exist in the form of powders or in solid forms, in any amount desired; the tars, ichthyol, and oily substances in smaller percentages, but sufficient for all practical purposes.

4. The action of drugs incorporated with it, and their effect upon disease, appears to be as good as when such are used in other excipients—or perhaps better in some cases.

5. It is of wide applicability, and of value in both acute and chronic forms of disease, its use being limited only by the degree of moisture on the surface to be treated.

# DISEASES OF THE EYE.

BY HENRY POWER, M.B., F.R.C.S.,

Ophthalmic Surgeon to St. Bartholomew's Hospital.

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## Introduction.

THE year that has passed has not presented any noteworthy advance in ophthalmic science, though many important subjects have been discussed at the various meetings and congresses that have been held, and improvements in methods of operation and in the treatment of disease suggested and practised. The meetings of the Ophthalmological Society of the United Kingdom have been held with regularity, but no discussion of exceptional importance has occurred.

A well-known ophthalmic surgeon practising for many years in Birmingham has just passed away at an advanced age, Mr. Middlemore, whose treatise on "Diseases of the Eye" was one of the best of its day, exhibiting not only thorough acquaintance with the history of the subject, but in every page illuminated by the light of his large experience and acute observation.

The ophthalmic surgeons of Belgium, as well as of other countries, have had occasion to mourn the loss of Dr. Édouard Warlomont, who died at Brussels on the 22nd of January, at the age of 70 years. He was chiefly known in this country as the conductor of the *Annales d'Oculistique*, which was published under his superintendence for thirty-seven years. Another distinguished ophthalmologist who has died during the year is F. J. von Becker, the Professor of Ophthalmology at Heidelberg. We may also record the deaths of Michaelis Szokalski and Martin, both men of high attainments, and holding places and appointments of importance.

The section of Ophthalmology at the annual meeting of the British Association held at Bournemouth was presided over by Mr. C. Macnamara, who delivered the introductory address, in the course of which he expressed himself in favour of extracting an immature cataract when both eyes are affected, so soon as the patient is inconvenienced by the increasing opacity of his lenses. He regards it as a mistake to condemn a patient



suffering from cataracts in both eyes to wait for an operation until the cataract in one eye has become matured. He recommends in the performance of the operation, not only the application of cocaine to the eye, but the administration of an anæsthetic, and he holds it necessary, for the successful extraction of an immature cataract, that a sufficiently large opening should be made in the cornea to allow the lens to escape with ease, and that an iridectomy should be performed. He uses antiseptic dressings. Amongst the papers that were read at this meeting, those by Mr. Beaumont, of Bath, Mr. Mackay, of Edinburgh, and Mr. McHardy, of London, on the "Vision of Railway Servants," were the most interesting. From them it appears that a certain, though small, proportion of drivers of locomotive engines are still in active work, and are entrusted with the charge of trains, who are either colour-blind or who have some error of refraction rendering their judgment of signals faulty, and seriously imperilling the lives of passengers. It is acknowledged that the methods of testing the eyesight of these men are very inadequate, and it would seem natural that their systematic and periodic examination should be entrusted to medical men, if not to experts. It should be remembered that the number of men now employed on the railways is very large. Dr. Mackay states that in Scotland alone there are 4,160 firemen and engine-drivers, more than 2,000 guards, and over 2,600 signal-men employed on 3,058 miles of railway. He states that the railway managers have given him assurances of support, and it is clearly advisable that a committee should be appointed to consider the best recommendations which ophthalmic surgeons can make to insure the safety of the public.

The most valuable addition that has been made to ophthalmological literature is undoubtedly the treatise by Professor Leber on Inflammation, in which the phenomena of that process have been carefully observed as occurring in the cornea, and as the result of wounds, with, in some instances, the injection of metallic substances and salts, either into the cornea or the interior of the globe.

The performance of the operation of extraction of cataract without iridectomy is gradually extending, though many experienced operators still prefer to excise a portion of the iris, on the ground of diminished risk. The advantages of the simple operation are, however, manifest, and have been well summed up by Dr. Bull, of New York, who, in advocating the practice, remarks that if successful, and without complication, it preserves the natural appearance of the eye, which presents a central, circular and movable pupil; that the acuteness of vision when

glasses have been carefully adjusted is superior to that obtained by the old operation; that excentric vision and orientation are decidedly better; that small particles of capsule are much less likely to be incarcerated in the wound, and thus act as foreign bodies, and excite irritation; that the operation is shorter, and less likely to be attended with hæmorrhage; and it may be added, the frequency with which needling has to be resorted to is not greater than when iridectomy has been practised.

The importance of prisms in the treatment of various forms of paresis of the external muscles of the eye has been the subject of special inquiry by **Dr. A. Percival** and others, whose investigations show that the use of prisms of low degree, such as  $1^\circ$ ,  $2^\circ$ , or  $3^\circ$ , for each eye, does, in some instances, materially relieve symptoms that are otherwise difficult or impossible to remove. It is difficult, however, at present to give precise directions in regard to the strength of prism that should be employed, the difficulty probably arising, as **Dr. Noyes** has pointed out, from the symptoms being sometimes due, not to paresis of the abductors, but to spasm of the adductor muscles.

The report of a committee nominated by the American Ophthalmological Society, in 1888, to determine the causes and prevention of blindness, has appeared in the "Transactions" of the American Ophthalmological Society, published by the society (Hartford, 1890). From this it appears that, whilst the population of the United States in 1870 was about 38,500,000, with 20,320 blind, in 1880 the population was a little over 50,000,000 with 48,929 blind, showing that whilst the population had increased 30 per cent. the number of blind increased 140.78 per cent.

The recommendations of the committee are, that in view of the large proportion of cases of blindness due to purulent ophthalmia in children, the profession should be familiarised, by means of lectures and papers read at societies, with the advantages of **Credé's** method of treatment, which consists in the instillation of a 2 per cent. solution of nitrate of silver into the eye of every new-born child, whilst previous to delivery the vagina is washed out with an astringent solution, and that midwives should be instructed in the mode of dealing with these cases. They also recommend that greater care should be taken in instructing physicians to asylums and residential schools, and other persons having charge of such institutions, concerning the dangers of contagious ophthalmia in any form. The committee strongly recommend also that more attention should be given by the faculty to the course of ophthalmology.



**1. Treatment of exophthalmic goitre by electricity.**

M. Vigouroux (*Gazette des Hôpitaux*, 5 Mai, 1891) maintains that the electric treatment of exophthalmic goitre is both highly efficacious and perfectly innocuous. It consists in the application of the Faradic current to the two carotids, the two periorbital regions, the thyroid tumour, and to the præcordial region successively. The effects produced are an immediate sense of relief, a diminution of the exophthalmus, and a less pronounced vascularisation of the face. Continuous currents act less powerfully, and are not well borne by the patient. In carrying out the application of the induced current, a large plate is in the first instance applied to the lower part of the neck, which constitutes the indifferent pole. The active pole consists of a flat or olive-shaped button or pad, according to the nature of the part to which it is to be applied. The duration of the sitting should be from ten to twelve minutes, repeated every other day at least. It is unnecessary and rather harmful than otherwise to resort to the employment of ferruginous remedies or to the iodides or bromides during the electrical treatment, nor do hydropathic measures seem to assist the cure. The amelioration is, as a rule, very speedy. The trembling and goitre are the first to disappear, then the exophthalmus, and in the course of a year the disturbance of the heart's action.

**2. The therapeutic action of Koch's fluid on ophthalmic disease.**

Königshofer and Maschke (*Deutsche Med. Wochenschrift*, Jan. 8, 1891), in a paper on this subject, give the details of eight cases of disease of the eye, supposed to be of a tuberculous nature, treated by Koch's fluid injected subcutaneously in doses of  $\frac{1}{2}$  to 1 milligramme. The cases were—one of serous iritis; one of multiple tumours resembling chalazion, affecting the eyelids; one of pseudo-granular conjunctivitis complicated with pannus and superficial ulceration of the cornea; one case of interstitial keratitis; and four cases of ulcers of the cornea in children of lymphatic temperament. The injection of the fluid was in all the cases except one followed by a general reaction with rise of temperature. A local reaction having its seat in the eye was also observed; purulent secretion, when present, was augmented, together with hyperæmia of the conjunctiva, whilst small phlyctenules made their appearance in parts previously sound. Immediately consequent upon the local reaction the ulcers of the cornea became clean, and cicatrisation took place rapidly. As control experiments, the authors injected Koch's liquid in two cases of syphilitic iritis, but obtained only negative results, no

reaction, either general or local, being observed. The authors conclude that we possess in Koch's fluid a remedy of considerable therapeutic value. Professor Sigel, of the Olga Hospital in Stuttgart, has also obtained speedy and good results from the injection of Koch's fluid in a case of ulcer of the cornea.

### 3. New operation for congenital ptosis.

Dr. Gillet de Grandmont (*Recueil d'Ophthalmologie*, No. 5, 1891, p. 267) suggests the following operation, which he terms "tarsomuscular resection," as being well adapted for cases of congenital ptosis. The upper lid is seized with a pair of Snellen's forceps, and an incision about 1 inch in length is made parallel to the free border of the lid, and at a distance of 3 or 4 mm. The two flaps of the wound are raised, and the corresponding fibres of the orbicularis are excised, so as to expose the whole of the tarsal cartilage almost from the ciliary border to the insertion of the levator palpebræ. The whole thickness of the tarsal cartilage is now cut through, nearly to the extent of the cutaneous wound and in the same direction, at a distance of from  $\frac{1}{12}$  to  $\frac{1}{8}$ th of an inch from the free border of the lid. A curvilinear incision must then be made which shall include all the tissues, so that when the flap is removed the plate of ebonite of Snellen's forceps is visible; the height of the median portion of the flap must correspond to the estimate of the degree of ptosis present. The two edges of the tarsal cartilage must be brought together by two or three catgut sutures, without touching the skin, the edges of which fall together. Antiseptic dressings are required.

### 4. Prophylaxis of ophthalmia neonatorum.

M. Valude (*Annales d'Oculistique*, t. cvi., 1891, p. 96), after commenting upon the excellent results obtained by the method of treatment advocated by Credé in hospitals, points out that the instillation of nitrate of silver solution is hardly to be entrusted to the hands of monthly nurses; and he has, therefore, sought for some simple means of treatment, from the misuse of which no danger is to be apprehended. He has found iodoform powder blown into the eyes between the lids one of the most efficacious. This may be done just before the cord is divided, after delivery. M. Valude's experiments were made in the hospital of St. Louis, and with the satisfactory result that the cases of purulent ophthalmia were reduced to one-half their former number.

### 5. Treatment of conjunctivitis by crude petroleum.

M. Troussseau (*Annales d'Oculistique*, t. cv., Mai, Juin, 1891, p. 240) observes that both silver nitrate and copper sulphate cause acute pain when applied in the treatment of conjunctivitis, and he



has tried many remedies with a view of supplying their place. Amongst these he desires to draw attention to the action of raw petroleum from the Caucasus. Its derivatives are less active and more irritating. The lids should be everted, and the inner surface brushed over with the fluid, which should be made to enter the cul-de-sacs. The application may be repeated, according to the intensity of the inflammation, two or three times daily. In cases of granular lids, he has rubbed it in with a tooth-brush. In catarrhal conjunctivitis, used twice daily, it quickly dries up the membrane, which resumes its natural aspect. In muco-purulent conjunctivitis, the result is less satisfactory, and it sometimes fails. In granular lids its effects are sometimes excellent, at others *nil*. He believes its good effects, when observed, are due to its influence on the development of microbes.

#### **6. Treatment of chronic conjunctivitis and granular lids.**

Misséjevitch (*Archives d'Ophthalmologie*, t. xi., No. 3, 1891, p. 280) recommends the employment of massage to the lids and conjunctiva in cases of chronic miliary conjunctivitis, of dry trachoma, and of loss of tone in the lids consequent on the too prolonged use of a compressive bandage. The massage may either be dry or performed with the aid of equal parts of glycerine and water, or of a solution of sulphate of copper in glycerine in the proportion of 1 to 30. Massage is contraindicated in all cases of inflammation of the lids, especially if accompanied by any congestion of the vessels of the globes and in cases of acute trachoma. The effects of massage are attributed to its mechanical action on the circulation, to its power of preventing the formation of colonies of microbes, to its promoting the absorption of inflammatory products, and lastly, to its facilitating the discharge of the numerous mucous and conjunctival glands, which participate in all inflammations affecting the conjunctiva. After treatment by massage relapses are rare.

#### **7. Treatment of abscess of the frontal sinuses.**

M. Guillemain (*Archives d'Ophthalmologie*, t. xi., No. 1, p. 1, 1891), in an essay on this subject, remarks that the term empyema would be more correct if applied to the collections of pus that occur in the frontal sinuses. The affection was scarcely recognised till the memoirs of Runge and of Richter, in 1750 and 1776 respectively, appeared. Yet they are of tolerably frequent occurrence, five cases having presented themselves in Professor Panas's clinic in the course of a single year. M. Poirier has shown that the dimensions of the frontal sinuses are very variable. As a rule, however, they increase with advancing age. In 30

subjects the average diameter in (18) males was 3 centimètres, in (12) females it was only 12 to 15 mm. Occasionally they are very large, **Ruysch** having seen them extend into the parietal bones, and in two of the 30 subjects examined by **Poirier** they were absent. Their capacity is from 3 to 5 cub. cent. They are hence large enough to receive and retain foreign bodies of various origin, such, for example, as missiles in war and the larvæ of insects. Each frontal sinus opens below by a short passage, which may be termed the frontal canal, into the infundibulum, which again opens into the middle meatus of the nose. **Poirier** extracted a ball from the right frontal sinus of a patient, the diagnosis having been founded on the fact that hæmorrhage took place from that side. The length of the frontal canal is from 10 to 15 mm., and its transverse diameter 2 to 3 mm. It is directed from above downwards, inwards, and backwards. The upper orifice is situated at some distance from the median septum. The lower opening into the middle meatus is prolonged by what may properly be called the frontal groove in such a way that fluids descending from the frontal sinuses easily pass into the maxillary sinus. The sinuses are lined by a thin, rosy membrane, presenting simple mucous glands, and having numerous nerves distributed through it, rendering it highly sensitive to the contact of foreign bodies, and probably also enabling it to minister to the sense of smell. Abscess of the frontal sinuses chiefly occurs in the adult, and has not been noted in the infant. It is more frequent in males than in females, in the proportion of 18:12. The left frontal sinus is more commonly attacked than the right, in the proportion of 3:1. The chief causes, or perhaps they should be termed precursors, of the disease that have been observed are constitutional diseases predisposing to suppuration, such as erysipelas, typhoid and scarlet fever, injuries and foreign bodies, and lastly inflammation of the nasal fosse. The symptoms are local and general; the general symptoms are rigors and fevers; the local, pain and tenderness, augmented on lowering the head, whilst at a later period swelling over the region of the sinuses appears. If left to itself, abscess of the frontal sinus opens usually into the orbit, the globe of the eye being thrust forward, everted, and rendered immovable. The diagnosis is difficult, and mistakes are often made. In regard to treatment, the indications are to open the sinus, to establish drainage, and to inject antiseptic fluids. A horizontal incision 35 mm. in length should be made immediately below the inner end of the eyebrow, joined by a vertical one 25 mm. in length. The roof of the orbit can then be perforated with facility; a large indiarubber drainage tube should then be inserted, and



finally a catheter should be passed through the fronto-ethmoidal passage to the nose.

### **8. Therapeutic value of intraocular and subconjunctival injections.**

M. Abadie (*Annales d'Oculistique*, t. cv., 1891, p. 243) states that in a case of ocular syphilis, which had resisted energetic mercurial treatment, he had obtained striking success by the injection on several occasions of a drop of a solution containing one part of sublimate in 1,000 of water. He further calls attention to the difficulties that arise in the treatment of cases of hæmorrhagic glaucoma, in which neither sclerotomy nor iridectomy give good results, the pain becoming in some instances so intense that enucleation has to be performed. In such cases he has sometimes succeeded in relieving the pain and avoiding the sacrifice of the eye by injecting a drop of ergotinine into the vitreous. He obtained an equally satisfactory result in the case of an hydrophthalmic eye which had become the seat of free hæmorrhage. The same proceeding may be adopted for the cure of certain microbic infiltrations of the cornea and of numerous forms of chorio-retinitis. Subcutaneous injections should be simultaneously performed, to prevent the occurrence of relapses.

M. Darier has for some time past also employed subconjunctival injection of solutions of sublimate in various forms of ophthalmic disease supposed to proceed from infection. Amongst these he mentions specific iritis, interstitial keratitis, central chorio-retinitis, choroiditis, and neuritis. The liquid injected and the syringe should, of course, be rendered perfectly aseptic. The dose should not exceed  $\frac{1}{100}$ th of a milligramme, and it may be repeated every third or fourth day for four or five times; a general mercurial treatment should also be practised.

### **9. Treatment of leucomata.**

Dr. Malgat, of Nice (*Recueil d'Ophthalmologie*, ser. iii., année 13, No. 9, Septembre, 1891, p. 520), commences his paper by giving a long list of remedies that have been suggested by ancient as well as by modern practitioners, having the removal of spots on the cornea for their object—such, for example, as lapis divinus, silver nitrate, zinc sulphate, eau céleste, and generally the salts and acids supposed to be capable of producing absorptive inflammation. Ansiaux recommended cadmium sulphate; Guépin and Tott, alum and morphia sulphate; Ansemoort, creasote; Fano, borax in solution; Galezowski, calomel in powder, and red precipitate in the form of ointment; Castorani, a collyrium of caustic potash and sodium sulphate in powder; Rothmund injected solutions of common salt into the conjunctiva near the margin of the

cornea; Meyer employed tincture of opium; Magin, agents intended to rasp the surface, like finely-powdered glass, cuttlefish bone, carbon, and sugar; Boerhaave used powdered aloes and alum, and applied the actual cautery; Demours scarified the surface; Weller passed a seton through the opacity; Malgaigne abraded the surface; Darwin and Dieffenbach cut it off; Perez de la Flor practised acupuncture; Willbrand and others, electrical currents. Besides these, other means of a more indirect character have been used to improve vision—such, for example, as iridectomy, and tenotomy of one of the recti to produce an artificial squint. The transplantation of the cornea from the dog or fowl has been tried, whilst some, in despair of a cure, have, for æsthetic reasons, resorted to the operation of tattooing the cornea.

Struck by the good effects observed from massage in the diseases of other organs, M. Malgat conceived the idea of trying this mode of treatment in cases of leucoma, and he states, setting aside those cases in which there is real cicatricial tissue, with striking success. His plan is to insert between the lids, with a Bowman's sound, a small quantity of a mixture of equal parts of mercury and lanolin, and to rub the lids in a circular direction for a minute once daily. The friction should not be too violent, lest the lens be injured. After each friction the eye is washed with a 3 per cent. solution of boric acid, or with aniline violet. The proceeding of massage is contraindicated when inflammation of the eye is present. It should be continued for some weeks or months.

#### **10. The indications for suture in wounds of the cornea.**

M. Galezowski (*Recueil d'Ophthalmologie*, ser. iii., année 13, No. 5, Mai, 1891, p. 262), in a memoir on this subject, read at the ninth session of the French Society of Ophthalmology, remarks that with the modern and greatly-improved method of operating for cataract, the union of the lips of the wound by means of a suture, though formerly recommended by some authors, is unnecessary and superfluous. Occasions, however, may arise when it becomes a useful proceeding. Thus, supposing all to have gone off well in an operation for extraction, the patient may receive an accidental blow in the eye, which is often followed by a hernia of the iris, or even with escape of the vitreous humour. Such an accident frequently leads to serious inflammatory troubles. The lips of the wound long remain patent and suppurative, iridochoroiditis, with all its unpleasant consequences, may supervene. The most rigorously-conducted antiseptic, instillations of collyria of atropine or eserine, of boric acid, naphthol, or phenol, or of



corrosive sublimate, all remain inefficacious, the eye becomes generally inflamed, or passes into atrophy. In such cases the application of one or more sutures, causing coaptation of the edges of the wound, proves of great service. Suture of the wound is also indicated in cases of severe penetrating wounds and cuts of the cornea and sclerotic. In performing this latter operation the edges of the wound should be held back by a small retractor, and the protruding portion of iris or choroid cut away. The edge of the cornea or sclerotic should be seized with fixing forceps having several teeth to secure a good hold, the needles should be extremely sharp and with lateral eyes, and the catgut used for the suture No. 000, and carefully asepticated. To keep the wound perfectly quiet during the first twenty-four hours, he places over it, beneath the eyelids, a gelatine plaque covered with glue on the corneal side.

#### **11. Treatment of keratitis punctata with salicylate of mercury.**

Obrastsov and Sergeieff (*Wiestnik Ophth.*, July, 1891, and *Archives d'Ophthalmologie*, i., 1891, p. 88) tried this remedy with good effect in the case of a peasant who was admitted into hospital with papular skin affection due to syphilis and punctated keratitis complicated on the right side with iritis. He had been blind for fifteen years with the right and for six years with the left eye, loss of vision supervening gradually and without pain. Injections of salicylate of mercury were commenced in doses of about one-sixth of a grain, increasing to one-third. After 3 to 5 injections the cornea, coincidently with the disappearance of the papular eruption, cleared up to a considerable extent. Towards the close of the treatment several small depressions or grooves appeared in the cornea, but without loss of substance. No ophthalmoscopic examination of the right eye could be made, but the left cornea became sufficiently clear to enable a white disc and a retina with few vessels to be made out.

#### **12. Operative treatment of staphyloma.**

Dr. I. Camo, of Lima (*Archives d'Ophthalmologie*, Mai, Juin, 1891, p. 265) observes that in his opinion the simple conjunctival suture of Knapp was an advance on the scleral suture of Critchett in the ablation of a staphyloma, but it was only one step, and not the true object to be attained. Indeed, however carefully it may be performed, and even with the modification suggested by Wecker of drawing the conjunctiva together purse-fashion, the vitreous sometimes escapes in quantity, leading to atrophy of the globe, which is occasionally preceded by hæmorrhage. To avoid this, preference is often given to enucleation when the staphyloma

is not entirely limited to the cornea. Moreover, a very large corneal wound is sometimes long in healing, and when the suture is removed at the close of a fortnight the wound is still found to be patent, covered with a yellowish exudation which ultimately becomes vascular. This process may last a month or more, and then a painful atrophied stump may be left. Hence he has asked himself, Is there any reason for removing completely the anterior segment of a staphylomatous eye? We have not to deal with a malignant growth, the ablation of the whole of which is important, but rather have a conservative proceeding in view, the object of which is to obtain an eye resembling the other as far as possible, and which by tattooing or other measures may render the wearing of an artificial eye unnecessary. M. Camo's operation consists in the administration of chloroform, to avoid danger from muscular spasm. Then the blepharostat is inserted to separate the lids, and with a sharp-edged curette he scrapes the surface of the cornea he intends to retain, removing the whole of the epithelium and the sub-epithelial nervous plexus, which materially lessens the liability to the occurrence of a painful stump. The next step is the detachment of the conjunctiva as far as to the equator of the eye, in order to be able to cover the corneal stump without exerting any traction on the conjunctiva, and thus to avoid pressure on the globe. With a single thread and single needle he makes six plaits of the conjunctiva, bringing the needle out beyond the point of entry, so that when required the edges of the cut conjunctiva can be brought together like the mouth of a purse. The temple, eyelids, and adjoining parts are thoroughly washed with an antiseptic. The staphyloma is now incised with a *Graefe's* knife in a direction and to an extent varying according to the case. He then cuts away with curved scissors several (usually six) triangles by radiating cuts which extend within a millimètre of the periphery, removing of course those portions of the cornea which are most irregular. The sharp curette is now again brought into requisition, to scrape the internal surface of the cornea, to remove any portion of iris that may be adherent, and the whole wound is freely washed with an antiseptic. A single thread of catgut is made to traverse the three or four corneal triangles, and they are drawn together, slight cuts being made to promote adaptation. The lens escapes during the scraping of the inner surface of the cornea. The conjunctival border is then brought together over the cornea by tightening the thread which traverses it, and contracts adhesions to the rasped surface, which do not at a subsequent period interfere with good results by tattooing.



### **13. Some indications for paracentesis in the treatment of acute iritis.**

Dr. A. Puech, of Bordeaux (*Recueil d'Ophthalmologie*, No. 1, 1891, p. 1), remarks that the employment of paracentesis in the course of acute iritis is, as a rule, determined by the presence of certain symptoms characterised by their intensity and violence, rendering them serious complications. Hence it is constantly practised when tension is increased, when the inflammatory products present certain characters, or even when pain is very acute. He desires, however, in the present communication, to show that, apart from these cases, paracentesis may act very promptly and favourably on the progress and termination of the affection, and that it is by no means necessary to wait till the occurrence of the above-mentioned symptoms compels the surgeon to interfere. He does not, of course, recommend that paracentesis should be performed in all cases of iritis, but he has been impressed with the generally unfavourable issue of iritis in old people, which he attributes to the greater rigidity of the sclerotic and cornea, the diminished permeability of the lymph spaces, and the impaired activity of the circulation that are present at that period of life. Hence pressure is exerted on the lens, interfering with its nutrition, and the products of exudation are absorbed with difficulty. The advantages of the early performance of paracentesis to prevent troublesome complications is in such cases obvious. A second indication for this operation is presented by the state of the pupil. When at the end of four or five days, or eight at the outside, the pupil is not sufficiently dilated, the presence of adhesions may be suspected. The escape of the aqueous humour consequent on paracentesis is followed by sudden contraction of the sphincter iridis, which not only opens the paths of filtration at the periphery of the iris, but is also capable of exercising strong traction upon, and effecting the rupture of, any posterior synechiæ that may have formed. Paracentesis, in fact, acts best in those cases, happily rare, which resist the combined action of local depletion, narcotics, and mydriatics. M. Puech has operated sometimes two or three times successively on the same patient with excellent results, and he appends to his paper the records of eight cases.

### **14. Metritic iritis.**

De Wecker (*Semaine Médicale*, 29 Avril, 1891) points out the importance, in the treatment of iritis, of recognising a form which is associated with uterine trouble. He considers that all ocular affections which proceed from metritic disease are due to septic inoculation. If, he says, we lay down the rule based on bacteriology that, in the study of inflammatory

affections, "no inflammation occurs without infection," we must clear the decks of reflex actions, of congestions following suppression of the menses, of disturbances of the circulation caused by changes of position and volume of the uterus, and similar dogmas. What is really required is to show whether simultaneously with the disturbance of the uterine functions we can demonstrate the presence of a focus or centre of infectious material, a portion of which, carried away by the circulation, has lodged in the eye, an organ well adapted for the retention and fixation of germs. An analogous instance is presented in the contamination of the organism by a lesion of the mucous membrane of the urethra observed in cases of virulent gonorrhœa. Indeed, it may be asked, Is there any part of the organism better adapted for the culture of infectious germs than the mucous membrane which lines the uterus and covers the folds of the vagina? The recrudescences and relapses that are coincident with the catamenial period (the catamenial iritis of Trousseau) may be explained on the supposition that this period is propitious to the infection of the system by the immigration of germs into it from the uterus. The attention of the practitioner may therefore be specially directed to what may be called "metritic iritis," although it must not be supposed that the uterus itself is always at fault, the focus of infection being sometimes in the parts adjoining the neck of the uterus, in the vagina, pelvis, or Fallopian tubes. The aid of an experienced gynecologist should therefore be invoked in all cases of iritis in women in whom the ophthalmic affection cannot be referred to either syphilis or rheumatism; and when disease is found in these parts, appropriate treatment should at once be instituted.

**15. Treatment of prolapse of iris after the simple operation for cataract.**

M. Parinaud, of Paris (*Recueil d'Ophthalmologie*, 3 Ser., 1891, No. 6, Juin, pp. 321 and 352), calls attention to the greater liability to prolapse of the iris that occurs when cataracts are extracted without iridectomy. He divides the cases into primary, in which this accident occurs in two groups—those in which the hernia of the iris is due to the anatomical conditions of the eye, and in particular to the nature of the wound; and secondary, or those in which there is a sudden bursting open of the already partially-closed wound. He lays it down as a maxim that the more the wound approaches the linear in direction, and the nearer it is to the periphery, the more probable is it that prolapse will occur. Hence he recommends a small flap of three or four millimètres in height, made well within the limits of the cornea. If from any cause it is observed, after the completion of the



section, that there is a tendency to the engagement of the iris in the wound—if, for example, the iris cannot be easily replaced in position by a light touch with the spatula—the question of an iridectomy arises, and it must be left to the tact and discretion of the operator whether it should be performed or not; and he does not hesitate to excise a portion of it if, in his judgment, it is required. Eserine, he thinks, can only be regarded as a remedy of doubtful efficacy. Secondary prolapse occurs in cases in which the pupil during the operation contracts with difficulty, or as the result of some sudden movement on the part of the patient, such as coughing or sneezing. Some patients, too, are restless and cannot bear confinement, and some are very stout, requiring great effort for the least movement, and some have asthma. In such cases iridectomy may be performed with advantage, and even suture of the cornea becomes a rational means of treatment. The iridectomy can be performed at any time during the first 24 hours after the extraction of the iris prolapse without much difficulty, but it becomes more difficult after that period.

#### **16. Treatment of glaucoma.**

Rheindorf (*Klin. Monatschrift für Augenheilkunde*, Februar, 1891), founding his views on a theory that glaucoma is the result of an interruption in the paths of filtration which exist between the anterior and posterior segments of the eye, recommends that the lens should be removed, whether cataractous or not, and that a rent should be made in the vitreous with the object of establishing a hernia of that humour. This operation is, he thinks, specially indicated when the anterior chamber does not reform after an iridectomy has been performed; when an acute attack of glaucoma supervenes soon after an iridectomy in chronic inflammatory glaucoma, and in simple glaucoma if the sharpness of vision diminishes in the course of a month; in cases when, notwithstanding that iridectomy has been performed, the visual sharpness continues to diminish; and, lastly, in cases of absolute glaucoma, in place of enucleation. The operation is easily performed, and there is no danger of hæmorrhage.

#### **17. Treatment of detachment of the retina.**

Adamuck (*Wiestnik Opth.*, July, and *Archives d'Ophthalmologie*, January, 1891, p. 95) expresses himself as opposed to the view of M. Logetchnikow, which is to the effect that when recovery takes place after apparent detachment of the retina in the course of pregnancy the detachment has not been real, but simply œdema of the retina. Adamuck adduces the case of a woman who after an attack of convulsions occurring in the eighth month of pregnancy, and which lasted for several hours, presented a funnel-

shaped detachment of both retinae. Premature confinement having been induced, the detachment disappeared in the course of a week, the retinae reapplied themselves to the choroid, and some weeks after, the recovery of vision was complete.

[If correctly observed, this is a remarkable case, and supports Adamuck's contention that the spontaneous disappearance of detachments of the retina either from injury or in the course of myopia is not so rare as has been generally accepted, and it points to the advisability of employing therapeutic measures, such as rest and the recumbent position, in the treatment of such cases.]

### **18. Operative treatment of high degrees of myopia.**

M. Fukala (*Archiv für Ophthalmologie*, Band xxxvi., Heft 2) recommends the removal of the lens, by discision in preference to extraction, when the degree of myopia requires glasses of 13 D or upwards for its correction. The advantages of this proceeding are that distant vision is improved, that the images are larger, that binocular vision is more easily accomplished, and lastly, and most important of all, that spasm of accommodation, so common in myopes, no longer trouble the patient.

### **19. The treatment of stenosis of the nasal duct.**

Jaesche (*Archives of Ophthalmology*, vol. xix., part 4) is opposed to the practice recommended by Eversbusch, who recommends that the nasal duct should be destroyed by means of galvanocautery in cases of chronic catarrhal conjunctivitis, and thinks the extirpation of the sac with a sharp-edged curette, with subsequent removal of the lacrymal gland, a superior method. His plan is to divide any adhesions which may be present with a knife of his own design, and when the nasal canal is reached, to complete the section with a Weber's knife. As soon as the slight hæmorrhage—which always occurs in these cases—has ceased, three and a half centimetres of catgut are introduced into the nasal duct by means of a silver grooved sound which he has devised. The upper end of the catgut is fixed between the eyebrows by a piece of sticking-plaster. After a few hours the catgut is withdrawn and the lacrymal passages are irrigated with an antiseptic and astringent solution. The catgut is introduced every night for three months, and is as regularly withdrawn in the morning. A leaden style is then left in the duct, at first persistently, and after a time occasionally. No other treatment is required.

### **20. Treatment of lacrymal fistula and of rebellious lacrymal tumours.**

Albert Terson (*Archives d'Ophthalmologie*, Mai, 1891, p. 224)



remarks that the treatment of lacrymal fistula by the actual cautery has been adopted and praised by surgeons at all epochs of history, whilst it has been decried by others. It may, he thinks, be regarded as a valuable method which may be tried when other apparently less violent means have failed. The excision or extirpation of the lacrymal sac also gives good results. These means should, however, only be undertaken after the introduction of probes and slitting up the canaliculus have failed. The instrument used by Panas is either a straight or curved cautery, terminating in an olive-shaped bulb about the size of a large grain of wheat. An incision should be made with a small convex bistoury, commencing just above the internal palpebral ligament, dividing this ligament, and finishing about one-third of an inch below the orifice of the fistula. As soon as the hæmorrhage—which is usually slight—is arrested, the thermo-cautery should be applied to the deepest part of the wound, the edges being carefully avoided. The cautery should render the surface of the sac smooth and clean, and the wound should be dressed with iodoform or other antiseptic material. Healing quickly takes place, with very slight trace of the injury, and no relapse need be feared unless there be disease of the bone. In cases of large lacrymal tumours, especially in those cases where the sac is encysted, total extirpation of the sac, followed or not followed by the application of the actual cautery, gives the best results.

#### **21. Treatment of disease of the lacrymal organs.**

(*Annales d'Oculistique*, t. cv. [15 Ser. T.v.], Livraisons 5 and 6, Mai, Juin, 1891, p. 227). A discussion on this subject was maintained at the 9th Session of the French Ophthalmological Society, held in Paris under the presidency of M. Pfæueger in May of the present year, in the course of which many opinions were expressed by different speakers. M. Libbrecht, of Gand, inserts a style with a small groove, which he leaves in the duct, and uses injections of chloride of zinc. M. Despagne, of Paris, considers the usual cause of epiphora to be a catarrh of the mucous membrane of the lacrymal sac, leading to oedema of the mucous membrane, with vegetation on its surface and excessive secretion of a viscousropy mucus. Therapeutic measures should therefore be directed to modify the condition of the mucous membrane. At the outset the moderate employment of the catheter and the use of antiseptic and astringent injections should be adopted. If lacrymation persists, it is because the rugous mucous membrane, covered with fungous granulations, forms veritable cloace, into which alterative fluids cannot penetrate. He recommends the sac to be

opened by puncturing the anterior wall, then, separating the lips of the wound, he exposes the internal surface, and aseptifies the interior by washing it freely out with a solution of perchloride of mercury containing 1 in 1,000. The interior is then freely abraded with a curette, and bleeds freely. If large granulations are found, he removes them with scissors. If the sac is greatly dilated, he removes a portion of the anterior wall. After further washing, he touches the interior with a mixture composed of glycerine 200 parts and mercury 1 part, and applies a light compressive bandage. The washing and application of the mercurialised glycerine are repeated several times daily for the week or more during which healing is taking place. Afterwards the washings are continued through the puncta lacrimalia. The excreting organs for the tears have in his hands always been preserved intact. M. Despagne is strongly opposed to the removal of a part of the lacrymal gland, considering that proceeding to be illogical and contrary to the indications derived from pathological anatomy. The lesion being in the sac, he cannot comprehend why a distant and sound part should be attacked. M. Trousseau, of Paris, considers that when dacryocystitis is complicated with osteoperiostitic complications, surgical measures should be adopted directed against these deep-seated lesions. Moreover, he is opposed to any operation in the case of dacryocystitis occurring in infants, preferring to treat them by compression and by treatment applied to the nasal fossæ. M. Parinaud, of Paris, holds that infection is the chief, if not the only, cause of lacrymal affections, and that the contraction or mechanical obstacle must be treated. He therefore slits up the canaliculus to some extent, and passes probes, and to cure the passive dilatation of the sac uses Vienna paste, the action of which on the skin he limits by inserting it in a small glass tube. M. Grandclément, of Lyons, in cases of chronic dacryocystitis, especially with dilatation of the sac, uses catheters, but always joins with them methodical pressure and massage of the sac, which patients can practise on themselves. M. Gillet de Grandmont, of Paris, uses simple dilatation of the lacrymal points, being persuaded that slitting up the canaliculi is useless. He thinks the nasal fossæ often require attention. M. Vignes, of Paris, stated that he had found great benefit to be derived from the use of solutions of naphthol.\* Lastly, M. Kalt, of Paris, recommended the introduction of a horsehair (†) (*crin de Florence*) into the canaliculus, which is to be brought out through a small incision in the anterior wall of the sac. At the same time the sac is to be washed out daily.



## DISEASES OF THE EAR.

BY GEORGE P. FIELD, M.R.C.S.,

*Aural Surgeon to St. Mary's Hospital.*

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### 1. Gangrene of the auricle.

Urbantschitch (*Med. Press and Circular*, June, 1891) reports a case of recurrent gangrene of the auricles in the person of a cabman. Recovery without apparent loss of tissue took place after treatment with a 10 per cent. emulsion of iodoform.

### 2. Foreign bodies in the meatus.

Zaufal (*Wiener Med. Presse*, Dec., 1890), writing on detachment of the auricle for the removal of foreign bodies, advocates it (a) upon the appearance of symptoms dangerous to life; (b) when the body is of such consistency as to be impassable at the isthmus; (c) when the patient cannot remain under observation of the surgeon.

Perron (*Gaz. Hebdom. des Med. Sci. de Bordeaux*) describes an operation for the removal of a foreign body occluding the meatal canal which does not necessitate detachment of the auricle. The operation consists essentially of making an incision into the swollen inferior wall of the meatus, through the lining down to the bone, from without inwards, extending under the foreign body. A special speculum resembling a split cone is used, together with a combined knife and hook. The knife serves to cut a track in the cutaneous structures, so that the hook can be passed along and turned up behind the foreign body.

### 3. Hæmatoma auris.

Grove (*Buffalo Med. Surg. Journal*, Nov., 1890) recommends opening of the sac and mopping out the cavity with the compound tincture of iodine. Firm, gentle pressure should afterwards be applied to favour rapid union. Drainage tubes and tents are condemned.

### 4. Epithelioma of the auricle.

Fourgeray (*Annales Méd. de l'Oreille*, etc., Paris, April, 1891) advocates complete amputation of the auricle by means of the

thermo-cautery in this condition. Caustic pastes nearly always prove disappointing, it is urged.

##### 5. Exostoses.

Pritchard (*Archiv. Otolology*, Jan., 1891) now operates with small trephines, such as those used by dentists and rhinologists, instead of burrs, in the case of large growths. Trephines are in this aurist's experience more expeditious, less liable to slip, and are productive of less *débris* and bleeding than burrs. He adds that these may be worked "by the electro-motor, or, as is perhaps preferable, by the dental engine."

[The compiler of this section tried some dental trephines (on the suggestion of Mr. Dolamore) in the summer of 1889, and found that they were certainly useful in some cases; but in his experience burrs worked with the dental engine, and not by the electro-motor, are found to answer best.]

##### 6. Dry meatus.

Szenes (*Internat. Klinische Rundschau*, Vienna, June, 1890) recommends a 20 per cent. solution of menthol in petrolol for increasing ceruminous secretion, and also for furuncle.

##### 7. Healing of perforations.

Theobald (*Med. Record*, Sept., 1891) recommends for promoting the healing of perforations artificial membranes moistened with an unguent of vaseline and balsam of Peru.

##### 8. Perforation of the membrana tympani.

Barclay (*Boston Med. Surg. Journal*) reports nine cases of perforations healed by the use of Blake's discs of sized paper. He advocates their use not only for the purpose of promoting healing of perforations, but also for permanent improvement of hearing.

##### 9. Collapsed or relaxed membranes.

Keller (*Monatschrift für Ohrenheilkunde*, Jan.) describes a simple modification of McKeown's treatment. The affected ear is inflated by Politzer's method and the fundus filled with collodion.

Lannors (*Annales des Maladies de l'Oreille*, xxvii., 1) reports on two cases of atrophy and relaxation of the membrana tympani which he had treated with collodion, according to the method of McKeown. After the use of the Eustachian catheter, a few drops of collodion are dropped into the ear, part of the collodion removed by cotton wool, and then the catheter is used again before the collodion has time to dry. The results were very satisfactory.

##### 10. Otorrhœa.

Damont (*La Semaine Médicale*, Paris, Jan., 1891) prescribes:—

R Beta-naphthol	...	...	...	...	1 part.
Camphor	...	...	...	...	2 parts.



The ear is to be cleansed by an antiseptic solution, and the camphorated naphthol, on a small cotton-wool pledget, is to be applied to the fundus on a fine aural applicator. The remedy can be applied with advantage to the attic on a bent applicator.

Mackenzie Johnston (*Edin. Med. Journal*, Jan., 1891) claims good results from an instillation of papain (5 per cent. solution neutralised with carbonate of soda). Fifteen drops can be retained in the ear for an hour.

Cuvillier (*Ann. des Malad. de l'Oreille*, etc., Paris, May, 1891) claims to have successfully treated nine cases with camphorated salol, a substance which is less irritating than camphorated naphthol, but quite as efficient an antiseptic.

Frantmann (*Deut. Med. Monatschrift*, No. 29, 1891) recommends the use of iodic-tri-chloride in cases of chronic otorrhœa. The ear is syringed, and then  $\frac{1}{8}$  per cent. solution of the chloride injected with a small glass syringe. The strength is gradually increased to 1 per cent., and the solution is applied every three or four days.

Rohren (*Achiv. Internat. de Otologie*, Nos. 41—44, 1890) has used aristol in over twenty cases of otorrhœa. The ear was carefully syringed and dried, and the aristol powder then insufflated. The results were highly satisfactory, much better than those obtained by boric acid or iodo.

Dr. M. Jaenicke (*Arch. Ohrenheilkunde*, xxxii., 1) recommends use of the soda salt of boric acid in cases of chronic purulent otitis media. He uses a 5 per cent. solution at first, and gradually decreases the strength. He also uses the powder for insufflation.

Lucæ (*Klinische Jahrbücher*, 1891) reports on seventeen cases of chronic purulent otitis media which he had treated with injections of tuberculin. In thirteen of these cases the mastoid antrum had been opened. In twelve cases there were also tubercular affections of lungs or skin. The local reaction was in all cases very slight. Several cases improved slightly, but in no case was there marked improvement or cure.

### 11. Pyoktannin.

This drug is now tried in all departments of surgery, and has, in spite of staining, been used in otorrhœa.

Barclay (*Med. Record*, New York, Aug., 1890) believes he has observed excellent results by means of instillations (of the strength of 1 in 1,000) retained in the ear for ten minutes, and then removed by swabbing with cotton pledgets.

Patrzek (*Allge. Med. Cent. Zeitung*, No. 63, 1890) has used pyoktannin in numerous cases of otorrhœa. The cases were treated for fourteen days, and showed no signs of improvement.

### 12. Sexton's operation.

Sexton (*Archives of Otolaryngology*, April, 1891) records seven cases of chronic catarrh of the middle ear successfully treated by removal of the drumhead together with the malleus, and sometimes of the incus. The membrane, of course, tends to regenerate; this tendency should be combatted by subsequent removal by the knife of the regenerated membrane. The idea is to enable sound to get to the membrana secundaria, and to relieve tinnitus by removal of rigid ossicles pressing on the labyrinthine fluid. He says, "As an immediate result of the operation it will be generally found that the hearing for high tones has been improved, sometimes very greatly, so that the rushing sound made by crumpling paper, for example, is painfully loud; and the ticking of a watch is especially well heard. The ability to hear low tones, as of the human voice, is not always improved at first, but develops gradually."

Coller (*Deut. Med. Woch.*, 1889, No. 28) records thirteen cases of suppurative otitis media successfully treated by excision of ossicles.

### 13. Intra-tympanic incisions for the relief of fixation of the ossicles.

Deuch (*Archiv. Otolaryng.*, Jan., 1891) relates four cases of purulent otitis media, in which the ossicles were more or less fixed with impaired hearing, where incisions were made into constricting bands with a view to effecting loosening ("mobilisation") of the stapes. Very marked improvement is reported after operation in every case. This operation of "circumcision" or mobilisation of the stapes, either by incising bands or disarticulating the incudo-stapedial joint, is very allied in its nature and in its object to the procedures of Sexton, Blake, and Burnett, in America, and of Schwartze, Kessel, Miot, and Weber Liel, on the Continent. Politzer was one of the first to suggest division of adhesions, the result of suppuration, in order to secure mobility of the ossicular chain, and so improve audition.

### 14. Extraction of the carious incus in chronic suppuration.

Ludewig (*Arch. f. Ohrenheilk.*, vol. xxix., p. 242) calls attention to the frequency of caries of the incus, and the necessity for its extraction in cases of chronic suppurative catarrh of the middle ear. He found that after excision of the malleus, suppuration is frequently kept up by a carious incus; he, therefore, advocates removal of both bones. Ludewig uses a special hook, something like that of Kretschmann, in order to dislocate the incus into the field of vision. Ludewig operated in thirty-two cases, of which twenty-one were possibly the result of acute



infectious diseases. The incus alone was carious in eleven cases; the incus and malleus in sixteen: that is to say, the incus was carious in 84 per cent. Permanent facial paralysis resulted in one case, temporary paresis in two. Headache and even vertigo was frequent after the operation. The suppuration was cured in twenty cases, with regeneration of the drumhead in five cases. One case terminated fatally, eleven cases are not cured, or are still under treatment.

#### **15. Attic disease.**

Randall (*Med. News*, Sept., 1890; and Trans. Amer. Otological Society, 1890) has seen sixty-five cases of disease in this region, with perforation of Shrapnell's membrane in his last 2,500 aural patients. He has never had recourse to excision of the ossicles, though he contemplates trying the value of that procedure. He has hitherto used the intra-tympanic syringe for this condition.

Schubert (*Archiv. f. Ohrenheilkunde*) advocates excision of the ossicles in cholesteatoma and perforation of Shrapnell's membrane. He finds the hearing often considerably improved, but the primary object of the operation is to relieve chronic insidious suppuration.

#### **16. Cholesteatoma of the tympanum.**

Politzer (*Wiener Med. Wochenschrift*, 1890, Nos. 8-12) discusses the formation and treatment of cholesteatoma of the middle ear. He recommends syringing out through the external meatus or Eustachian tube. When the perforation of the membrana tympani is small, he uses a small bent tube similar to the one recommended by Hartman. In cases of perforation of Shrapnell's membrane, he enlarges the perforation, and syringes out with a most ingenious small syringe, or, if necessary, he also uses a sharp spoon.

[Instruments can be obtained from Reiner, Vienna. The paper is most interesting, and well worth reading *in extenso*.]

Zanfä (*Wiener Med. Presse*, June, 1890) operates for these so-called tumours by means of incisions similar to those for detachment of the auricle in the removal of foreign bodies. The posterior and superior bony walls of the canal are then chiselled so that the tympanum with its attic, antrum, and surrounding cells are exposed. The masses are curetted away, and chromic acid or some other caustic applied. The lower part of the wound is left open some time for drainage.

Turnbull and Bliss (*An. Univ. Med. Sci.*, vol. iv., 1891) very strongly recommend alcohol in the treatment of cholesteatoma.

#### **17. Excision of the membrane and malleus for tinnitus and vertigo.**

Burnett (*American Journal Med. Sci.*, February) relates the

case of a lady of 31 years, who had suffered since childhood from otorrhœa, with progressive deafness and recent tinnitus and vertigo of a distressing character. After a long-continued course of the usual treatment without benefit, it was determined to remove the malleus, in order to relieve intralabyrinthine pressure. Both tinnitus and vertigo were cured through removing pressure on the stapes.

### 18. Intratympanic adhesions.

Deuch (*New York Med. Journal*, September, 1891) declares his belief of the importance in catheterisation of the "use of *prolonged and rather powerful inflation* when there is evidence of firm adhesions, when the membrane is not atrophied to an extent to endanger rupture from this procedure." The mechanical effect of the air current in stretching adhesions in the cavity of the tympanum he is convinced does more good than the mere renewal of air, especially when the tubes are fairly patent. Instead of air, the vapour of iodine and camphor can be introduced by the catheter, often with marked advantage. Deuch also advocates division of bands with a knife, and tenotomy of the tensor in obstinate cases.

### 19. Eustachian inflations and injections.

Burkner (*Berlin. Klin. Woch.*, No. 44) protests against the indiscriminate and frequent use of Politzer's method. He thinks that the bag is useful chiefly in children, whereas in adults the Eustachian catheter should be used.

Lowenberg (*Deutsche Med. Wochenschrift*, 1890, No. 40) draws attention to the danger of the use of the Eustachian catheter or Politzer's bag in cases of sclerosis of the middle ear. He recommends that in these cases the external meatus be well closed by the finger or by an indiarubber plug which can be attached to the Politzer's bag (as recommended by himself).

Schwabach (*Therap. Monatschrift*, No. 3, 1890) and Baumgarten (*Monatschr. f. Ohrenheilk.*, No. 2, 1890) confirm Kiesselbach's observations as to the value of five-drop injections of cocaine (5 per cent.) *per tubam* in tinnitus. They have both, however, observed symptoms of cocaine intoxication after this treatment, and advise caution.

Fiano (*Gaz. degli Ospitali*, October, 1890) records production of toxic symptoms in a female under this treatment.

Schwabach (*Therapeut. Monatschrift*, No. 3, 1891) reports on the injection of cocaine through the Eustachian tube in cases of tinnitus. In one case he injected 5 milligrammes of a 5 per cent. solution, and in about a quarter of an hour violent symptoms of cocaine poisoning set in. He recommends, therefore, that one



should begin with the injection of weak solutions, and that the patient be kept under supervision for at least about one half-hour.

**20. Setons for the relief of mastoid pain, associated with sclerosing osteitis of the process.**

W. Hill (in my Aural Clinic) recently prescribed setons inserted into the soft tissues over the mastoid region in two cases of recurrent mastoid pain in the above condition—with complete success in one case, but only temporary relief in the other. This procedure is, the writer believes, a novel one in chronic sclerosing osteitis of the mastoid and in aural surgery generally; but it seems to be capable of wide application as a substitute for blistering, leeching, and even Wilde's incision, in these and other sub-acute conditions. The disfigurement from scars is probably not greater than after Wilde's incision. Moreover, it serves to prevent too early closure of the wound, so undesirable where there is superficial bone mischief, and efficient drainage is secured.

Knapp (*Med. Record*, Sept., 1891) advocates opening of the bone in "congestive mastoiditis, which, without such treatment, is apt to run for many years and lead to sclerosis."

[This practically means an application of the treatment frequently adopted in general surgery, of performing osteotomy of a sclerosing hypertrophy of bone where there is pain present.]

**21. Leiter's coil in mastoid disease.**

Bacon (*New York Med. Journal*, Oct. 10, 1891) endorses Politzer's and Barr's experience as to the efficiency of the cold coil in the early acute stage of mastoid inflammation. He remarks that this appliance is not adopted so frequently as it should be for the relief of pain and inflammation in the early stages of mastoid disease. But mere relief of pain, if unaccompanied by lowering of the fever and pulse, is an indication that other measures are necessary, such as Wilde's incision or mastoid osteotomy.

**22. Opening of the mastoid process.**

Helman (*Archives of Otolaryngology*, April, 1891) discusses in what cases and when the mastoid should be opened. He says that at present the indications for the operation may be summed up as follows:—

1. In acute purulent otitis media, complicated with inflammations of the mastoid process, when the inflammatory symptoms, like the swelling of the skin, the fever, the persistent and severe pain, do not yield to anti-phlogistic treatment (ice, leeches) and Wilde's incision.

2. In acute and chronic purulent catarrh, when the escape of the secretion is impeded by granulations in the middle ear or

stenosis of the external auditory canal, causing recurrent swelling, redness, and painfulness of the skin of the mastoid region; or, in the absence of these objective symptoms, when there is suspicion of mastoid inflammation.

3. When the mastoid is apparently healthy, but removal of pus or cholesteatomatous masses through natural channels is impossible, and symptoms dangerous to life manifest themselves.

4. In congestive abscesses and fistulæ in the mastoid region, when they cannot be cured within a reasonable time, and the general condition is satisfactory, and the patient free from diathesis or dyscrasia.

5. In persistent continuous pain in the mastoid, yielding to no other treatment, though there is no apparent retention of pus, and the mastoid seems healthy, though especially when it is sensitive to pressure; and also in the absence of pain in the mastoid and in free discharge, when in otitis media (acute and chronic) there is continuous though not high fever, which does not yield to treatment.

6. As a prophylactic operation in symptoms present or absent, of retention of secretion and inflammation of the process, when death is to be feared on account of imperfect disinfection.

7. In acute purulent otitis media, in which, without inflammation and retention, the discharge is profuse, does not yield to usual treatment in two or three days, and in which fever supervenes.

8. When there are symptoms of intracranial complications.

Early operations only are, as a rule, successful. Speaking of the method of operating with trephines and drills (driven presumably by a surgical engine), Heiman remarks:—

1. The removal of the compact portion of the mastoid, especially when thick, is much more rapid than with the mallet.

2. The edges of the wound need not be smoothed off after the operation.

3. Different-sized trephines permit the formation of a wound in the bone to the desired size.

4. Shock, which can scarcely be avoided with the hammer and mallet, is entirely obviated with the trephine.

5. The depth of the wound can be graduated with exactness.

The sharp spoon is advocated for clearing out the mastoid cells.

### **23. Tapping the mastoid cells.**

H. W. Page (*Lancet*, Aug., 1891) records two successful cases in which he opened the mastoid cells with the chisel and evacuated pus; both cases presented symptoms pointing to intracranial



disturbances, though in neither case had intracranial abscesses actually formed; this, however, was so strongly suspected in one of the patients, that the skull was opened and exploratory punctures made before operating on the mastoid. This surgeon strongly urges *early* opening of the mastoid cells when there is evidence of suppurative disease, in order to avert risks which are always imminent in those suffering from intermittent discharges from the middle ear, with pain in connection with cessation of the discharge. In these two cases there was *frontal* pain in addition to aural symptoms.

Mayo Collier (*Lancet*, Feb., 1891), in recording a case, writes: "I would urge that although there be no pain or tenderness, and no evidence of the retention of pus, if the discharge be obstinate, offensive, and of some years' standing, a cure may be effected and death averted by a timely vent in the mastoid process."

#### **24. Mastoid retractor.**

Barth (*Archiv. Otolgy*, Jan., 1891) describes a retractor for separating the divided soft parts during the operation of opening the mastoid process. It consists of two bars, each provided with three sharp-pointed hooks; these bars are connected in such a manner by two rods and a screw that when approximated the hooks form a single line. After having divided the soft parts, including the periosteum, and having rasped the latter from the bone, the hooks are applied so that the points touch the bone at the spot where it is desired to operate; they are then separated; the points of the hooks grasp the soft parts, while the arms separate them, at the same time pushing the auricle forward. When completely separated by the screw arrangement, the two arms retract the soft parts so as to leave a clear field for operation. The advantages claimed are that, in the first place, the assistant necessary to hold the ordinary retractors in place can be dispensed with; moreover, the retraction is more efficient and cleaner than when manipulated by an assistant. The pressure exerted by the instrument controls bleeding from the soft parts.

#### **25. Mastoid disease.**

Orne Green (*Amer. Journal Med. Sciences*, Dec., 1890), writing on eighty cases with various forms of mastoid trouble in which an operation was performed, reports that sixty-two were cured, seven died in spite of operative treatment, and the result in two was unknown. Of the seven fatal cases, five had active cerebral symptoms at the time of the operation. In only seven of all the eighty cases was no pus found, and in these the pain was due to sclerosing hypertrophy and obliteration of the mastoid cells.

He recommends the gouge and mallet for opening the bone, and the dental engine for enlarging the opening and removing irregularities. He has given up metallic drainage tubes, using only rubber. In his experience no ill-effects have followed exposure of the dura mater in the neighbourhood of the lateral sinus.

Schwartz (*Deutsche Med. Aertzliche Zeitschrift*, 1890, No. 7) reports on twenty-eight cases of fatal brain affection due to ear disease—i.e., two cases of meningitis, ten of brain abscess, and sixteen of disease of lateral sinus. He insists on the more frequent opening of the mastoid antrum in the following cases:—

1. Acute affections of the mastoid process, in which the application of ice or Wilde's incision have failed to relieve the symptoms.

2. Secondary affections of the mastoid antrum, in which local treatment of the middle ear for one or two weeks has not been of any benefit.

3. Chronic affections of the middle ear, with recurrent swelling or fistula of the mastoid process or local abscess.

4. Chronic otorrhœa, with signs of retention of pus or of cholesteatoma.

5. Chronic otorrhœa, which is not cured by ordinary local treatment.

## **26. Dangerous aural complications resulting from rhino-pharyngeal operations or cauterisations.**

Thompson (*Journal Amer. Med. Association*, Dec. 21) reports twenty cases illustrating dangerous middle ear and mastoid inflammations following severe manipulations in the nose and throat during an acute catarrh. In fourteen cases suppurative otitis was produced; mastoid inflammation developed in four cases, two of which terminated fatally.

The writer concludes that (a) the condition of the ears should be ascertained before attempting any treatment for the nose and throat. (b) Surgical procedures should not be undertaken or caustic applications made during an acute inflammation of the nose or pharynx. (c) Patients should be directed to report to their medical attendant immediately of the first twinge of pain in the ear. (d) The operator should be prepared to leech such cases early, and puncture the drumhead, and should not delay to open the mastoid cells when such procedure is indicated.

## **27. Retrospect.**

The compiler of this summary has in most instances preferred to give a short abstract of the principal recent communications on aural treatment without comment. The year has not, on the



whole, been very prolific of new methods of distinct value; but there have been published a large number of observations of the results of forms of treatment which must be considered still on their trial.

The *à priori* objections to Eustachian injections of cocaine have been justified by published and, it may be added, by unpublished testimony.

The importance of early evacuating pus and caseating infective matter pent up in the tympanic attic or in the mastoid cells, has been emphasised by the records of a large number of observers, a few of which papers only are here epitomised.

The value of Leiter's coil in early inflammatory stages can be personally vouched for; but as it masks pain, considerable discrimination should be exercised in order to avoid being lulled to false security and delay when more active measures are imperatively needed.

A trial will doubtless be given in suitable cases to the mastoid seton, which seems a good suggestion.

Judgment must, in the opinion of the writer, still be suspended as to the real value or otherwise of excision of the ossicles in the various conditions alluded to in these pages. In the meantime English otologists seem to be well content to leave experimental observations in this field of surgery to their Continental and American *confrères*.

Finally, it will be noticed that few communications on new departures in aural treatment have been made by British otologists, and coincidentally with this we have little to record this year on the intranasal treatment of ear disease.

## DISEASES OF THE THROAT AND NOSE.

BY BARCLAY J. BARON, M.B., C.M. EDIN.,

*Physician in charge of the Throat Department of the Bristol General Hospital, and  
Lecturer on Pathology and Morbid Anatomy in the Bristol Medical School.*

THE treatment of tuberculosis and lupus of the throat and nose has been incessantly discussed by laryngologists and rhinologists during the past year. In the early months of the year there was some hope that Professor Koch's remedy was the long-looked-for and at length discovered specific for these terrible diseases. All of us were eager to get *tuberculin* for use amongst our patients, and it is safe to say that no discovery in ancient or modern medicine has created so much excitement and enthusiasm. Certainly no remedy has had such a patient and careful—indeed, we may say, exhaustive—trial as the one in question. Unfortunately the last months of the year close with few, if any, of the expectations and hopes of its early ones realised, and it is to be feared that we have little to gain from the use of this substance, as it is now sent out from Berlin. Whether in the future it can be so modified as to become valuable remains to be proved.

Following on Koch's discovery was that of Oscar Liebreich, but we are not yet able to assess accurately the value of *salts of cantharidin*, although there is no doubt that they have some action on tubercular deposits.

In addition to these serious proposals for the treatment of tuberculosis, advanced by two of the most trustworthy scientists that we have ever had in the profession, there has been some good work, that may lead to valuable hints for treatment, done in the investigation of the question of immunity against the diphtheria poison.

### VARIA.

#### **1. The use of electricity in diseases of the throat.**

Macintyre (*Journal of Laryngology*, Feb., 1891) recommends a storage cell as the generator of the electricity rather than any form of battery, on the ground of compactness, non-fuming, high electro-motive force, non-polarisation, great capacity, no local action—there being no plates or cells to clean.



We are able to determine the exact amount of current that remains in and can be got out of the cell by noting the specific gravity.

He considers the galvano-cautery as most valuable in destroying hypertrophied tissue and arresting hæmorrhage. He has not been successful in the treatment of goitre by carrying electric currents into the tumour by means of platinum needles, but aneurismal varix of the upper respiratory tract decreases in size and gradually hardens and shrivels under this method of treatment. The current should be a gradually-increasing one, from one to ten milliampères, and great care must be exercised in manipulation, lest over-stimulation of the part cause death of the tissue and subsequent hæmorrhage.

In the treatment of nervous and muscular lesions of the larynx and pharynx the following are useful rules:—

1. We can use either the negative or the positive pole; but if the latter, the current must be stronger than if we use the former.

2. Ten milliampères in most cases is the full dose.

3. Duration is decided by idiosyncrasy, but, speaking broadly, mild doses and long continuance of administration is better than large doses and short sittings.

4. For the treatment of anæsthesia, use the negative pole; but in a nervous affection, the positive pole. Where there is deficiency of nervous stimulus the passage of a mild current in any direction does good.

5. If a muscle has lost its power of contraction, place the positive electrode towards the central end of the nerve, and the negative towards the muscle.

## 2. Pilocarpine in dryness of the tongue.

Blackman (*Brit. Med. Journal*, June 14, 1890) recommends that a gelatine disc containing  $\frac{1}{20}$  to  $\frac{1}{10}$  of a grain of pilocarpine be allowed to dissolve on the tongue. By this means a flow of saliva is induced which lasts for twenty-four hours.

## 3. An antiseptic mouth-wash.

Miller (*Journal of Laryngology*, Sept., 1891) recommends the following mixture, of which three parts in twenty-seven parts of water, or of a 4 per cent. solution of peroxide of hydrogen, are to be kept in the mouth for a minute.

B.	Saccharin.	...	...	...	2.5 parts,
	Acid. benzoic.	...	...	...	3 "
	Tinct. rhatanzæ	...	...	...	15 "
	Alcohol. abs.	...	...	...	100 "
	Ol. menth. pip.	...	...	...	0.5 "
	Ol. cinnamomi	...	...	...	0.5 "

#### 4. Treatment of post-diphtheritic paralysis.

Guthrie (*Lancet*, April 18, 1891) enjoins complete rest in bed for six weeks from the onset of the paralysis, with abundant food and tonics, especially strychnine. If bulbar crises occur,  $\frac{1}{50}$  to  $\frac{1}{30}$  of a grain of strychnine and  $\frac{1}{120}$  to  $\frac{1}{100}$  of a grain of atropine are combined and administered hypodermically—the former to act as a powerful stimulant to the respiratory and cardiac centres, and the latter to arrest pulmonary and other secretions.

Rozenzweig (*Lancet*, May 9, 1891) injected  $\frac{1}{32}$  to  $\frac{1}{2}$  of a grain of strychnine into the neck daily in children with good results.

Beale (*Brit. Med. Journal*, May 30, 1891) injects three to five minims of liq. strychninæ P.B. every four hours for a day or two with good effects.

#### 5. Statistics of intubation.

Waxham's (*Archiv. of Pediatrics*, July, 1891) figures are as follows:—

First,	100 cases,	27 recoveries,	or 27 per cent.	
Second,	100	34	34	34
Third,	100	42	42	42
Last,	43	18	41.85	41.85

### TONSILS.

#### 6. Surgical treatment of "suppurative tonsillitis."

Rice (*Med. Record*, Jan. 31, 1891) believes that suppuration takes place in the peritonsillar connective tissue and only rarely in the tonsil itself, and then only if abnormal adhesion between it and one or both pillars has occurred. He alleges that suppuration does not follow acute tonsillitis unless adhesions be present, and if these are divided early in the acute attack, it will not ensue. When suppuration takes place, the pus is usually found between the anterior pillar and the tonsil, or in the posterior pillar. Puncture of the pillar with a tenotomy knife or a galvano-cautery point, and then pushing a probe down into the connective tissue lying at the anterior external angle of the tonsil, reaches it most readily. The author also advises that any adhesions between the pillars and the tonsil should be divided, in order to prevent future attacks.

### PHARYNX.

#### 7. Operative treatment of retropharyngeal abscess.

Gobroloff (*Journal of Laryngology*, May, 1891) has treated forty cases of typical retropharyngeal abscess and sixteen cases



of retropharyngeal lymphadenitis, and his conclusions are as follows:—

1. If the abscess be entirely in the retropharyngeal space, it should be opened by a large incision through the mouth.

2. If too deeply seated to be thus reached, or if the pus has passed under the external cervical aponeurosis and towards the side of the neck, or in the case of traumatic phlegmon of the retropharyngeal cellular tissue, or if they be tubercular congestive abscesses, they must be opened externally in the lateral aspect of the neck.

Bokai (*Journal of Laryngology*, May, 1891) has treated 138 cases by opening them internally, and has had eight deaths. He only opens the abscess externally when it is caused by spondylitis or the presence of a foreign body.

#### **8. Fuchsin in diseases of the pharynx and larynx.**

Bogroff (*Journal of Laryngology*, July, 1891) found that in a case of mycosis pharyngis a solution of corrosive sublimate in fuchsin (1 to 1,000) quickly brought about cure, where various parasitocides without fuchsin had been tried in vain. In phthisis, where the larynx is irritated by the expectoration, injection of a solution of fuchsin into it is very useful.

#### **9. Ergot in phthisical sore throat.**

Brooke (*Brit. Med. Journal*, Suppl., Oct. 18, 1890) recommends 20-minim doses of the liquid extract of ergot for "the ordinary sore throat of phthisis," which is characterised by thirst, dryness of the mouth and throat, and dysphagia, with congestion and sometimes slight ulceration of the pharynx.

#### **10. Cachexia strumipriva after removal of the thyroid for goitre.**

Berry (*Brit. Med. Journal*, June 27, 1891) thus summarises:—The conclusion at which we may arrive is that if the gland be completely removed, there is a very great risk that cachexia strumipriva will supervene, although it is not absolutely certain that it will do so in all cases. The risk, however, is sufficiently great to warrant us in laying down the law that *complete* extirpation of a goitrous thyroid gland should never be performed. This complication has followed *partial* removal of the gland, but then the symptoms of the disease were only slight and temporary, and there was reason for believing that the portion of gland left behind was very small, or that it had undergone degeneration. It appears to be quite immaterial what portion of the gland is left behind. The treatment of cachexia strumipriva mainly consists in keeping the patient warm.

**11. Treatment of goitre.**

Auerbach (*Journal of Laryngology*, June, 1891) injects into the thyroid a syringeful of an aqueous solution of osmic acid, gr. i. to ʒii., once a day or every other day for three weeks. In addition to this he administers iodide of potassium, and practises massage of the gland once daily for fifteen minutes, with very good results.

Kapper (*Deutsch. Med. Woch.*, July 9, 1891), in cases of cystic goitre, injects 15 to 25 minims of a solution consisting of

Iodoform	...	...	...	...	1 part.
Ether	...	...	...	...	7 parts.
Olive oil	...	...	...	...	7 "

into several different spots in the gland, and repeats it in from four to six days. He has performed 150 injections, has seen no bad result from it, and is satisfied that the gland becomes smaller.

**LARYNX.****12. Treatment of laryngitis in vocalists who ought to rest, but cannot do so.**

Faulkner (*New York Med. Journal*, April 11, 1891) treats voice-users who are suffering from sub-acute laryngitis, and who ought to rest their vocal organs, but from the pressing nature of their engagements cannot do so, in the following manner:—

He administers an aperient, sprays the larynx with a 1 per cent. solution of cocaine, and prescribes the frequent use of a lozenge composed of

Morphiæ bimeconat.	...	...	...	...	gr. $\frac{1}{100}$ .
Cocain. hydrochlor.	...	...	...	...	gr. $\frac{1}{125}$ .
Tinct. aconiti	...	...	...	...	ʒi.
Rad. althææ	...	...	...	...	gr. $\frac{1}{2}$ .

—also a mixture containing aconite and sal-volatile. When the more acute symptoms have subsided, and on the morning of the day when a special vocal effort has to be made, e.g., singing at a concert, the patient takes gr.  $\frac{1}{60}$  of strychnine, the same dose after lunch, and gr.  $\frac{1}{30}$  after dinner.

**13. Pilocarpine in severe laryngeal œdema.**

Mendoza (*Journal of Laryngology*, August, 1891) injected gr.  $\frac{1}{2}$  of pilocarpine divided into three doses, which were given at 20-minute intervals, with the result that calm good breathing took the place of the severe dyspnoea from which the patient suffered previous to the injection.



#### 14. Treatment of tuberculosis of the larynx by pyoktannin.

Capart (*Journal of Laryngology*, August, 1891) has found this drug of value in tubercular ulceration (*vide* "Year-Book of Treatment," 1891, pp. 438 and 465).

#### 15. Intratracheal injections in diseases of the throat and lungs.

Downie (*Brit. Med. Journal*, April 18, 1891) injects a 12 to 15 per cent. solution of menthol mixed with a 2 to 4 per cent. solution of guaiacol, in olive or vaseline oil, into the trachea by means of a specially-devised laryngeal tube fitted to an ordinary hypodermic syringe. As much as  $1\frac{1}{2}$  to 2 drachms can be injected into the windpipe without causing the slightest inconvenience to the patient. The effects are:—

(1) *Respiration and cough*.—A sensation of warmth in the larynx, spreading to the sternum, is first of all felt. Breathing becomes freer, and cough much less frequent. Sleep, being less disturbed by the cough, is sounder and more refreshing.

(2) *Expectoration*.—In phthisical cases it is diminished and becomes less purulent and fetid. The bacilli are said to be greatly decreased in number.

(3) *Bodily condition*.—Marked increase in weight is noticeable in most cases.

(4) *Temperature*.—This is lowered, owing, the author thinks, to the antiseptic properties of the solution employed, which act favourably on the poisonous substances evolved by the bacilli.

Botey (*Brit. Med. Journal*, Suppl., November 22, 1890) says that we must be careful to carry the nozzle of the syringe below the level of the vocal cords before injecting any solution into the windpipe; it should be kept close to the wall of the trachea, and the fluid should be emitted drop by drop. He mentions the case of a patient suffering from very refractory laryngo-tracheal syphilis, which was cured by injections of 25 cubic centimètres of a 1 per cent. solution of iodide of potassium, to which was added 1 centigramme of perchloride of mercury.

Masini (*ibid.*) has used injections of creasote oil, and Gualdi of eucalyptol and menthol solutions, with benefit in phthisis.

#### 16. Prophylaxis against spasm of the glottis following endo-laryngeal manipulations.

Kayser (*Therap. Monatschrift*, No. 10, 1890) instructs the patient to take ten deep inspirations rapidly, in order that apnoea may be produced, before any instrument is put into the larynx. If the necessary manipulation is then at once carried out, the patient

is in no danger if spasm occurs, as he has his blood so thoroughly aerated.

**17. Removal of an epitheliomatous growth of the larynx by intra-laryngeal operation.**

Stoker (*Journal of Laryngology*, April, 1891) has recorded this case, in which the growth was situated on one of the vocal cords, and previous to the operation "competent pathologists had examined two pieces that were removed, and pronounced them epithelioma." Three other portions subsequently removed were also found to present the microscopic structure of epithelioma. The operator used the galvano-cautery snare exclusively, and the base of the growth was thoroughly cauterised. Nine months after the operation there had been no recurrence, merely congestion of the vocal cord from which the growth had sprung being found.

**18. Influence of tracheotomy on affections of the larynx.**

Kuttner (*Berlin. Klin. Woch.*, August 31, 1891) reports a case of tubercular laryngitis that was cured by tracheotomy which gave the parts rest.

Garel (*Journal of Laryngology*, August, 1891) reports two cases of children where tracheotomy was necessary on account of papillomata blocking the larynx, and where the growth completely disappeared without further operation. He advises us to wait some time after the windpipe of a child is opened, before we proceed to remove the growth, in order to see if such a result may not be obtained.

**19. Acute laryngitis caused by cauterisation with iodide of mercury.**

Kanasugi (*Berlin. Klin. Woch.*, Sept. 7, 1891) administered iodide of potassium to a patient suffering from laryngeal syphilis; at the same time he insufflated calomel into the larynx, with the result that iodide of mercury was formed *in situ*, acute oedematous laryngitis was set up, and where the calomel had lodged on the vocal cords, etc., spots like those caused by caustics made their appearance.

[I have quoted this case, as it has such a practical bearing on treatment.—B. J. B.]

**20. Treatment of laryngeal croup.**

Betz (*Memorabilia*, April 18, 1891) recommends the inhalation of three drops of the following mixture every fifteen minutes:—

Sulphuric ether	...	...	...	...	30 parts.
Acetic ether	...	...	...	...	10 "
Menthol	...	...	...	...	1 part



### 21. Koch's tuberculin.

B. Fränkel (*Deutsch. Med. Woch.*, Dec. 25, 1891), in the address which opened the long and noted discussion in the *Berliner Med. Gesellschaft* on the value of this substance in tubercular conditions, reports the effects of the drug in fifteen cases of tuberculosis of the pharynx and larynx. His conclusions are as follows:—The laryngoscope teaches us that the rise of temperature of the general reaction is preceded by local changes in the throat, and is to be regarded as produced by the absorption of degenerated tissue, and not as anything necessary to healing. He thus describes the local changes that ensue:—

1. Increase of swelling and redness are never absent, sometimes appearing simultaneously with the rise of temperature, sometimes independently of it. This swelling has in no patient under observation been so great as to cause stridor or dyspnoea, even where there was so much infiltration before the injection as to narrow the lumen of the larynx, but in such a case very small doses are advisable. The inflammatory swelling usually is as transitory as the rise of temperature, and in some instances not only does it leave the parts as they were before the injection, but the infiltration that was present previously is lessened and eventually disappears, and, as was observed especially in out-growths of the posterior laryngeal wall and thickening of the vocal cords, without necrosis.

2. In other cases sloughing takes place. The infiltrated parts look greenish and transparent, and are covered with a whitish or yellowish pellicle, which consists of epithelium; under this there may take place healing as under a scab, but usually *loss of substance* ensues and we get an *ulcer*, which tends to heal quickly. In other cases *acute caseation* occurs; the infiltrated parts look yellow and opaque, and microscopically present the appearance of caseous material, the epithelium quickly disappearing. Here healing or ulceration may ensue.

3. If tuberculous ulceration is present before treatment, the ulcers soon granulate and show a tendency to heal, just as if they had been treated by other methods, but the cleaning and healing process is much more rapid.

Fränkel lays much stress on the fact that parts of the throat which, previous to injection, were considered healthy, often become infiltrated, ulcerated, etc., under treatment. He does not believe that these pathological appearances are caused by tuberculin, but that the tissues were affected before injection, the disease being so deeply implanted as to give rise to no changes that could be appreciated with the laryngoscope, nor to symptoms of which the

patient was conscious; and that it was only when tuberculin roused the tubercular deposits into activity that they made their way to the surface and were got rid of. He states that he has seen improvement in all his laryngeal cases, and he is firmly convinced that the drug will cure tuberculosis of the larynx and lungs where the disease is not too far advanced. In advanced cases, and where the general condition becomes worse under treatment, continuous fever being established, and also in cases where reactions are not obtained, we shall do nothing.

At the conclusion of the long discussion, Fränkel (*Berl. Klin. Woch.*, Feb. 23, 1891) said that tuberculin acts as a caustic does, and sets up inflammatory changes that tend to necrosis in parts where the bacilli are active, but, as Virchow's preparations show, not in all parts. This leads him to look on tuberculin as a specific.

The objections to its use are :—

1. It leaves the bacilli untouched. He thinks that where the substance modifies the condition of ulcers, as seen in the pharynx and larynx, there is a struggle between the bacilli and the granulations, and as the former or the latter are victorious, so we get unfavourable or favourable results; i.e., under certain circumstances the healing of tubercular processes can and does take place. If the bacilli are enclosed in cavities or in caseous nodules, or are under the skin or mucous membrane, one of two things will happen; either the deposits will be absorbed, or the bacilli will become encapsuled, and we are apt to get continuous fever and other bad symptoms. As regards the statement that tuberculin has caused acute miliary tuberculosis, Fränkel points out that this disease attacks phthisical people who have not been injected, especially where the tubercular masses invade the blood or lymph vascular system. He considers that we have no right to say that miliary tuberculosis is due to injection, unless at least three weeks have elapsed after the tuberculin has been administered.

2. The bad concomitant effects.—Pneumonia and pneumothorax may ensue after injection, but also without it, and Fränkel thinks that we ought not to ascribe to tuberculin much power for evil in this respect. He acknowledges that the use of the drug is to some extent dangerous, but he emphatically states his belief that we ought to use it, in spite of the dangers, as it can do more to heal tuberculosis than any other method of treatment.

Lublinski, Grabower, and O. Fräntzel (*Berl. Klin. Woch.*, Dec. 15, 1890) have seen laryngeal cases that have improved under injection.

Krause (*Berl. Klin. Woch.*, Nos. 49 and 53, 1890) says that



the effect of the drug is, without doubt, favourable. He has had fourteen cases under treatment for two and a half weeks, and is satisfied with the progress they have made. Redness, swelling, exfoliation of dead parts, and healing of the affected spots in the throat are the signs of improvement. He has seen dangerous swelling occur in one case, but considers that the drug may be administered even in advanced cases, as it will at least have a palliative if not curative effect.

Schnitzler (*Journal of Laryngology*, Jan., 1891) believes the favourable action of the remedy to be certain. He reports (*ibid.*, March, 1891) one case of laryngeal tuberculosis much worse, and one case of laryngo-pulmonary tuberculosis better as regards the larynx, but worse as regards the lung. Still later he reports (*ibid.*, Sept., 1891) a case of pulmonary tuberculosis with intumescence of the inter-arytenoid mucous membrane, and swelling of the ventricular bands. Injections were made, and after some signs of improvement pneumonia supervened, accompanied by œdema of the epiglottis and the appearance of miliary nodules on it, the pharynx, and naso-pharynx. These nodules were brushed with tuberculin, 1 decigramme being used at a time, and were destroyed, cicatrization taking place. Later, deterioration and death of the patient ensued.

Michael (*Journal of Laryngology*, Jan., 1891) reports twelve cases of laryngo-pulmonary tuberculosis which were injected, the result being eight cases better, two worse, two negative; two cases of lupus of the throat much improved.

Macintyre (*ibid.*) reports some improvement in lupus and tubercular throat and nose cases.

Lennox Browne (*Koch's Remedy in Throat Consumption*, London Jan., 1891) quotes Koch thus:—"These experiences lead me to suppose that phthisis, in the beginning, can be cured with certainty by this remedy."

Sedziak and Sokolowski (*Journal of Laryngology*, March, 1891) have injected nine cases of pulmonary and laryngeal tuberculosis; two of these got better, five worse, and two negative. Perforation of the membrana tympani occurred in one case that was otherwise considered to have improved.

Burkardt (*ibid.*) reports improvement in cases of lupus and tuberculosis of the throat, and has seen tubercular ulcers cicatrise after injection.

Prior (*Münch. Med. Woch.*, Nos. 4, 5, 6, 1891) has treated ten cases of laryngeal tuberculosis, and believes that he has cured two of them.

Cantani (*Berl. Klin. Woch.*, March 2, 1891) says that he has

practically cured three cases with tuberculin—one a case of desquamative catarrh of the inter-arytenoid mucous membrane and vocal cord, another of ulceration of a vocal cord, and a third of paresis of the glottis and hyperæmia of the larynx.

Rugel (*Deutsch. Med. Woch.*, No. 11, 1891) observed complete cure of two cases of laryngeal ulceration. In two other cases of laryngeal phthisis the effects of tuberculin were bad—*e.g.*, in one so much swelling took place as to necessitate tracheotomy; in the other ulceration spread very rapidly under treatment.

Schultze (*ibid.*, No. 13, 1891) has discontinued using it, as the results are so bad.

Nanwerck (*ibid.*) has never seen a case of laryngeal phthisis cured by it.

Morell Mackenzie (*Journal of Laryngology*, April, 1891) has treated seven cases of laryngo-pulmonary tuberculosis during four months, with the following results:—

Much improved	...	...	...	...	...	...	1
Improved	...	...	...	...	...	...	1
Not improved	...	...	...	...	...	...	1
Unfavourably affected	...	...	...	...	...	...	4

Of those "unfavourably affected," two died—one of them seven, and the other six, weeks after the last injection; death was thought to have been accelerated by the treatment, which was only carried out at the urgent entreaty of the patients, as they were not considered suitable cases. The "much improved" and "improved" cases were not considered to have done better than is often seen in hospital or private practice after a few weeks' treatment by older methods.

Westphalen (*Journal of Laryngology*, June, 1891) reports some disastrous cases. (1) Laryngo-pulmonary tuberculosis—death after nine injections; post-mortem examination revealed miliary tuberculosis of most of the internal organs and of the mucous membrane of the bronchi and trachea, also extensive ulceration of the whole of the larynx.

(2) Another similar case; death after nine injections; post-mortem examination:—miliary tuberculosis of lungs, liver, kidney, and bowel, and ulceration of the larynx.

(3) Pulmonary tuberculosis and infiltration, but not ulceration of the larynx; death after six injections; tubercular meningitis and miliary tuberculosis found post-mortem.

Kohts (*Therap. Monatsch.*, No. 4, 1891) has published two cases—one, practically negative result; the other, a case of pulmonary tuberculosis, with chronic laryngitis without ulceration; after eleven injections of moderate doses, swelling of the epiglottis,



large ulcers on the interarytenoid space and ventricular bands; dysphagia occurred, and shortly afterwards death took place.

Tangl (*Deutsch. Med. Woch.*, No. 19, 1891) treated a case of tuberculosis of the tongue and slight affection of the larynx. Fourteen injections were given, and then vesicles on the tongue changed into ulcers, which spread, and bacilli were found in extirpated fragments of them. Two months later, death from widespread miliary tuberculosis occurred.

Heron (*Brit. Med. Journal*, April 25, 1891) has had too few laryngeal cases to justify a decided opinion; but so far as they went, nothing definitely good has been accomplished.

Michelson (*Journal of Laryngology*, July, 1891) reports three cases of lupus of the throat and nose, two of which were cured and one improved. One of the "cured" cases received sixty-six injections.

Strubing (*ibid.*, Aug., 1891) cured a case of laryngeal phthisis with forty-three injections, the lungs only slightly improved.

Grabower (*Deutsch. Med. Woch.*, Nos. 23 to 28, 1891) has had thirty-eight cases of laryngo-pulmonary tuberculosis under treatment by tuberculin at the Moabit Hospital, Berlin. The results are as follow:—

22	cases improved.
5	" were cured.
6	" negative results.
5	" became worse.

The dose in most instances ranged from .001 grm. to .1 grm.; in only one case was the small dose of .0001 grm. administered, but in several .04 grm. was the maximum reached. As regards the number of injections that were given in the "improved" cases, the average was twenty-eight, the highest being fifty-two and the lowest ten. In the "cured" cases, the average was twenty-eight, the highest being thirty-four, and the lowest nineteen. In those with "negative results," the average was twenty-one, the highest being thirty-four, and the lowest fifteen. In three of the "improved" cases, whilst the laryngeal condition got better, the lungs steadily deteriorated, showing that the two organs do not behave alike under treatment. In four cases the ulcers are said to have disappeared, or cicatrised. Of the "cured" cases, ulceration had existed in two instances, and infiltration in three. Of those patients who became worse under treatment, death occurred in one case; fresh tubercles made their appearance after cicatrization of others had taken place. This was also noticed in another patient. In another, .001 grm. caused a strong local and general reaction, with continuous fever and deterioration of health. In the remaining two cases fresh tubercle

nodules appeared, but disappeared after twenty injections in one of them.

Sacharjin (*Berl. Klin. Woch.*, July 27, 1891) thus concludes:—

(1) Cicatrisation of tuberculous ulcers on free surfaces, such as the skin, nose, mouth, throat, larynx, and intestine, may take place, after removal of necrotic parts, as a result of injections with tuberculin.

(2) Only exceptionally ought we to use it in such cases, on account of the possibility that exists of awakening a latent tuberculous deposit.

## **22. Action of salts of cantharidin on tubercular throat conditions.**

Oscar Liebreich (*Berl. Klin. Woch.*, March 2, 1891) read a long and most carefully-prepared communication on this drug before the Berl. Med. Gesellschaft on Feb. 25, 1891. (*See article on "Diseases of Lungs,"* p. 73, § 17.)

Paul Heymann (*ibid.*) followed him, and related particulars of twenty-seven cases, only seventeen of which, however, had been under treatment long enough to be of value. Of these, eleven suffered from tuberculosis of the larynx, some of them being very ill, and the remaining six cases were affected with laryngeal catarrh. They were all treated as out-patients, and led their ordinary life; the dose given varied from 1 to 4 decimillegrammes, 2 being the usual one. Only once was there inflammation at the site of puncture, and never abscess formation. Headache, giddiness, and transient diarrhoea were noticed in some cases. Some patients complained of difficulty and smarting in urination, and once after 4 decimillegrammes blood is said to have appeared in the urine; albuminuria was never discovered. All the tuberculous patients got better, generally and locally, in a few days, and the voice steadily improved, until in some cases hoarseness had entirely disappeared. The bacilli were not affected. In three cases the physical signs in the lungs improved, râles diminished or disappeared, and in one instance the area of dulness lessened. Expectoration became less in quantity and thinner in consistence, the cough was not so urgent, and in four cases almost disappeared. Night sweats ceased in nearly all the patients. Hectic fever ceased in one case. As regards the larynx, redness lessened in intensity, infiltration quickly decreased, and, *pari passu*, the voice improved, granulations became whiter and flatter, ulcers cleaned and got smaller and eventually healed and began to cicatrise. The œdema of the arytenoids receded, and, in fact, all the diseased parts gradually got better, just as is seen in syphilis when treated with iodide of potassium. One patient who



had redness, infiltration, and ulceration of the vocal cords, and who was almost aphonic, the lung being also affected, received nine injections, and the ulceration completely healed; after three more injections the infiltration practically disappeared, the voice returned, and the physical signs in the lungs cleared up. This was the only tubercular case in which no bacilli were discovered. Most of the simple catarrhal cases improved.

B. Fränkel (*Berl. Klin. Woch.*, March 2, 1891) said that he had treated fifteen cases, most of whom showed signs of improvement—*e.g.*, ulcers cleaned and tended to heal, infiltration lessened, the voice improved, and swallowing was not so painful. He thought that the bacilli became fewer in number and did not stain so well. He was of opinion that the question of its therapeutic value is an open one.

Lublinski (*ibid.*) has treated sixteen cases of laryngo-pulmonary tuberculosis of moderate intensity. The laryngeal conditions were in most cases those of an early stage—*viz.*, infiltration and ulceration of the posterior laryngeal wall; but in some instances the ventricular bands and vocal cords were ulcerated. Many patients complained of pain at the site of injection, which in some lasted the whole day, and the potash salt was worse in this respect than the soda salt. Headache and faintness were noticed in one patient, another had severe diarrhoea, and in three others strangury appeared. Slight hæmoptysis ensued in twelve cases. As to the effect on the larynx, the diseased parts became congested and were covered with a thin secretion, granulations became more healthy, ulcers cleaned and even healed, the voice improved as infiltration lessened. The author hopes that the drug will be of value.

B. Fränkel (*ibid.*) still reports improvement of his cases. He thinks that we ought never to administer more than 1 decimillegramme at first; and if this causes any urinary troubles, to wait, and then begin again with half a decimillegramme. He advises a day's interval between the injections, in order that the intumescence caused by each of them may subside before the next is administered.

Liebreich (*ibid.*), in his reply, laid stress on the fact that the drug causes no rise of temperature and no exanthem. He sees no danger in the slight and transitory albuminuria caused by its use, and denies that blood has ever appeared in the urine after a therapeutic dose.

Rosenbach (*Deutsch. Med. Woch.*, April 9, 1891) has seen improvement under cantharidin. He showed five cases to the society, and the following short notes may serve to show the effect of the drug on them:—

1. Aphonia for four weeks, ulceration on both sides of the larynx and a granulating wound. The ulcers healed on one side and improved on the other, the wound was reduced to one-fourth of its size. The voice returned, cough lessened, and dysphagia disappeared.

2 and 3. Very similar results.

4. Great œdema of the whole of the entrance to the larynx, and ulceration all about the glottis, the opening of which was three millimètres. Under treatment, this opening enlarged to five millimètres, the epiglottis became much thinner, and breathing more easy.

5. In this case, which resembled No. 4, miliary tuberculosis appeared, broke down, disappeared, and left a scar.

Liebreich's theory of the action of the drug was borne out in one case by its causing considerable serous exudation from the diseased larynx. Strangury and tenesmus were noticed in some cases, and once blood appeared in the urine, also a trace of albumen.

Saalfeld (*Deutsch. Med. Woch.*, March 9, 1891) showed a case of lupus of the cheek, in which the affected patch had become flatter, paler, and smaller under treatment. Very slight local reaction was felt after one injection out of five.

Landgraf (*ibid.*) said that he had not seen any benefit from using cantharidin in five cases of acute laryngitis. With regard to chronic cases, he thus summarises:—

1. Increase in the exudation of serum takes place, as shown by the expectoration becoming altered.

2. Œdema ensues after its use in some cases, but quickly disappears, suggesting the idea that cantharidin causes the serum to flow out of the capillaries at the inflamed parts, and that this is rapidly re-absorbed.

Cornil (*Journal des Connaiss. Méd.*, April 16, 1891) has used it in seven cases of laryngo-pulmonary tuberculosis, with no improvement in any patient, and increase of œdema in one instance. He thinks that the pouring out of serum which may be stored up in the connective tissue adjoining tubercular parts is dangerous, from its liability to produce œdema.

Tomás (*Brit. Med. Journal*, Suppl., May 23, 1891) and Germonig (*ibid.*, May 30, 1891) both speak favourably of it.

Grüttner (*Münch. Med. Woch.*, No. 28, 1891) has abandoned it as useless after treating ten patients.

Bogroff (*Berl. Klin. Woch.*, No. 28, 1891) has seen cicatrisation of ulcers occur in some parts, and fresh ulceration ensue in other parts of the same larynx under treatment.



Benvers and Rosenberg spoke well of it at the Berlin Verein für innere Medicin (*Berl. Klin. Woch.*, Sept. 7, 1891), tubercular conditions being speedily and most favourably influenced by it. The former has seen diphtheritic membrane quickly thrown off by it. In none of these cases was blood or albumen found in the urine.

Polyak (*Journal of Laryngology*, Oct., 1891) reports improvement in one case after ten injections.

Hochhalt, Irsay, and Navratil (*ibid.*) report unfavourably, hæmoptysis, œdema glottidis, and fever supervening.

Rennenkampf (*ibid.*) reports six cases of laryngo-pulmonary tuberculosis; two of these improved, three got worse, and one remained stationary.

## NOSE AND NASO-PHARYNX.

### 23. Treatment of abscess of the septum nasi.

Schaeffer (*Therap. Monatsch.*, No. 10, 1890) recommends an elliptical incision through the mucous membrane and the removal of necrosed cartilage by means of a spoon, followed by the application of a cotton-wool tampon.

### 24. Treatment of deviations of the nasal septum.

Sedziak (*Journal of Laryngology*, March and April, 1891) thus summarises:—

1. In fresh cases of traumatic origin and situated in the cartilaginous portion in children, tampons of wool are very useful.

2. In somewhat older cases of deviations of the cartilaginous septum, especially if sigmoid, orthopædic treatment by means of the Adams-Jurasz instrument is valuable.

3. In cases of spinæ and cristæ, and also (but rarely) in angular deflections, usually and by preference the galvano cautery; in some instances the chisel or the saw must be used after separation of the mucous membrane.

4. Where the cartilaginous septum deviates to one side and is not in the same plane as the bony septum, Jurasz's method is to be commended.

Moure and Bergoiné read a paper at the International Medical Congress (Report in *Journal of Laryngology*, Dec., 1890), in which they strongly advocate *electrolysis* as being very successful and not so unpleasant to the patient as any of the other methods of treatment by saw, chisel, or trephine.

The technique of the monopolar positive galvano puncture is as follows:—A large indifferent electrode, 10 × 20 centimètres in diameter, made of copper plate covered with platinum and this in turn enveloped in gauze, is placed between the scapulae. Cocaine

having been applied to the nose, a sailmaker's steel needle insulated except at the point, and connected with the positive pole of a battery of 30 volts, is plunged into the septum. The battery must be provided with a rheostat, by means of which the intensity of the current can be gradually increased until it reaches 12 to 30 milliampères, according to the amount of destructive action required. It must be gradually decreased before the needle is withdrawn, and a fresh needle used each time.

If the bipolar method is chosen, two needles, positive and negative, are stuck into the deviation, the positive needle being placed in the thickest and hardest part of it. A current of 12 to 25 milliampères, employed for ten to thirty minutes, is sufficient.

#### **25. The treatment of cold in the head.**

Rabow (*Brit. Med. Journal* Suppl., April 19, 1890) says that frequent and strong sniffing of a powder composed of two parts of menthol, fifty parts of finely-ground roasted coffee, and fifty parts of powdered sugar, is very good as a remedy for a fresh cold in the head.

#### **26. Trichloracetic acid in affections of the nose and throat.**

Gleitzmann (*Medical Record*, March 14, 1891) uses Meret's preparation exclusively, and has treated 200 cases with it. He applies it by means of flexible aluminium rods, excavated at the distal end, so that the acid can be placed in the excavation, the nose and larynx having been previously cocaineised.

The eschar that results is white and dry, and usually drops off in two to five days, the inflammatory swelling is very slight, and the action of the acid is a limited one. It is valuable in the treatment of nasal hypertrophies (except cartilaginous spurs), granules on the pharynx, overgrowth of the lingual tonsil, and laryngeal poly-poid excrescences.

#### **27. Electrolysis in rhino-laryngeal surgery.**

Draispul (*Journal of Laryngology*, May, 1891) finds this to be very slow in its action, especially if we have to destroy considerable portions of tissue. Where the tissue to be destroyed is rich in vessels or fluid contents and in small quantity, good and quick results can be obtained. In the treatment of small angiomata and warts the method is of value; but the larynx is so intolerant as to prevent our treating laryngeal disease with this method.

#### **28. The treatment of an acute attack of hay fever.**

Gluck (*Med. Record*, May 16, 1891) applies a solution of cocaine phenol on absorbent cotton to the interior of the nose, and when a moderate amount of contraction and anæsthesia has been produced,



a 1 per cent. solution of sulphate of atropia is applied and small doses of aconite are administered every hour or two.

### 29. The treatment of atrophic rhinitis.

Phillips (*New York Med. Journal*, May 23, 1891) has found a solution of aristol in almond oil, benzoinol, or liquid petroleum oil, very effectual in checking the fœtor of atrophic rhinitis and in promoting the healing of ulceration of the septum nasi. As much as 3iii of aristol can be dissolved in one ounce of benzoinol.

Buerkner (*Berl. Klin. Woch.*, No. 26, 1891) has used aristol with success in ozæna and syphilitic ulceration. He quotes Pini, Massini, Seifert, Hughes, and Löwenstein as having reported favourably of its use in ulceration of the throat and nose, syphilitic and otherwise.

[I have found solutions of aristol of value in lupous ulceration of the palate and naso-pharynx, although Heller (*Berlin. Klin. Woch.*, May 4, 1891) read a paper before the Berlin Dermatological Society in which he claimed to have proved that this substance is less powerful in its action on bacteria than iodol, and still less, therefore, than iodoform.—B. J. B.]

Wright (*New York Med. Record*, Aug. 15, 1891) advises the use of watery or oily solutions of thymol, sprayed up the nostril after it has been cleaned carefully. A solution of half to one and half grains to the ounce of water or oil is strong enough and of considerable benefit.

Phillips (*New York Med. Journal*, May 16, 1891) uses a spray of keroline-ichthyol, *i.e.*, a 5 per cent. solution of ichthyol in keroline, mixed with liquid vaseline in the proportion of one part to three to five parts. Eucalyptol or menthol can be added to this mixture in order to disguise the fishy smell and for other reasons.

### 30. The aseptic method as applied to intra-nasal surgery.

Roe (*Med. News*, March 28, 1891) cleanses the nasal cavity thoroughly before operating with a 1 to 4,000 solution of corrosive sublimate, boric acid, and common salt. All the instruments that are likely to be required, and the cocaine solution used to produce local anæsthesia, are sterilised. After the operation is completed, the same antiseptic solution is used, and then thin metallic plates, evenly covered with antiseptically prepared Angora wool or perchloride of mercury cotton, are inserted into the nostril close against the wounded surface. These must be removed periodically, the nostril thoroughly irrigated, iodoform brushed over it, and the plugs replaced.

### 31. Treatment of diseases of the accessory cavities of the nose.

Max Schaeffer (*Deutsch. Med. Woch.*, Oct. 9, 1890), in treating disease of the frontal sinus, first passes a brass probe up into it; if there be dead bone present, he introduces a sharp spoon, scrapes the cavity freely, washes it out with a solution of perchloride of mercury, and insufflates iodol or boracic acid. If necessary, cauterisations are made subsequently with chromic or trichloroacetic acid. If there be disease of the ethmoidal sinus, the spoon is pushed upwards, backwards and outwards, between the middle and inferior turbinated bodies at the junction of the middle turbinated body with the outer wall of the nostril.

In order to reach the sphenoidal sinus the probe is pressed against the septum and pushed upwards and backwards, as if to perforate an imaginary continuation of the septum backwards.

The treatment of all the sinuses is the same as that of the frontal sinus, and the author's statistics are as follow :—

Frontal sinus	...	...	25 cases:	7 improved,	18 cured.
Ethmoidal „	...	...	19 „	1 „	17 „
Sphenoidal „	...	...	7 „	1 unknown,	6 „

Brown (*New York Med. Journal*, July 19, 1890) treats empyema of the antrum by opening into the cavity from the mouth below the gingivo-labial fold between the upper portions of the roots of the second bicuspid and first molar teeth by means of a drill. A gold tube is fitted into the channel thus made, and kept in place by being fastened by means of a collar round the tooth. The loss of a tooth is obviated by this operation, and the author claims that better drainage is secured, as the hole is made into the bottom of the cavity, which is not the case if we drill up through the alveolus after extracting the tooth, as is done in the usual operation.

Bresgen (*Berl. Klin. Woch.*, No. 39, 1890) opens the antrum by Krause's method, removes the pus by insufflation of air, and then insufflates iodol and iodoform into the cavity.

Cholewa (*Therap. Monatsch.*, No. 3, 1891) opens the frontal sinus with a sharp probe, syringes the cavity, and then introduces a probe covered with pyoktannin. He thus cured one case after three applications.



# SUMMARY OF THE THERAPEUTICS OF THE YEAR 1890-91,

CHIEFLY IN REFERENCE TO NEW REMEDIES.

BY WALTER G. SMITH, M.D., UNIV. DUBLIN,

*King's Professor of Materia Medica in the School of Physic, Trinity College, Dublin ;  
Physician to Sir Patrick Dun's Hospital.*

THE past year yields no record of any sensational discovery in therapeutics, and the inrush of new remedies furnished by synthetic chemistry has fortunately been less abundant than in some former years.

Antiseptics, antipyretics, hypnotics, and analgesics still hold the field, and command the largest share of attention.

## NEW BOOKS.

1. "Handbuch der allgemeinen Therapie der Kreislaufstörungen." von Dr. Oertel. 4<sup>te</sup>. Aufl., 1891.
2. "A Manual of Nitrous Oxide Anæsthesia." By J. F. W. Silk, M.D. J. & A. Churchill.
3. "The Practice of Hypnotic Suggestion." By G. C. Kingsbury, M.D. J. Wright & Co., Bristol.

## ANTIPYRETICS.

### **1. Action of antipyretics.**

The theory as to the mode of action of antipyretics is of great practical interest. The action of antipyretics may be supposed to be due to the limitation of the oxidation processes and consequent lowering of heat development, or to an increase in the heat radiation from the surface of the body. Moreover, they may have a purely local action, *i.e.*, on the cellular tissue, or they may influence the nerve centres regulating the development or radiation of heat. Messrs. Sawodowsky and Podanowsky consider they have proved that the lowering of temperature produced by

antipyrin and antifebrin is attributable exclusively to their influence upon the brain centres regulating the temperature, which occur in the corpus striatum (*Apot. Zeit.*, Feb. 11, p. 87). The authors, in an experiment, cut the brain of an animal through close behind the corpus striatum and thalamus opticus, so as to isolate the organism from the heat centres, while the connection with the respiration and vaso-motor centres was retained. Although the animal so treated lived for some time and the arterial blood pressure and breathing remained unaltered, the body temperature fell continuously. Even injections of the most powerful pyretics, such as putrescent matter, caused not the slightest rise of temperature, although all the other symptoms of putrescent infection were present. The skin temperature also remained entirely unchanged, although in the case of normal animals this rises considerably after the injection of antipyretics. An apparent exception was noticed in the case of quinine hydrobromide, but this was attributed to the known action of bromine. The conclusion drawn by the authors is that the action of quinine salts, resorcin, and thallin, in lowering the temperature is dependent upon their specific influence upon the temperature-regulating centres, situated in the anterior part of the brain (*Pharm. Journal*, Feb. 28, 1891).

Dr. Gottlieb points out that by calorimetric determination of the total loss of heat of an animal at a given temperature, we can also determine the value of its heat-production. He arrives at these conclusions:—

Quinine depresses in rabbits the production of heat. The diminution in normal animals amounts to from 8 to 18 per cent.; in pyrexia induced by puncture of the brain, to 40 per cent. Simultaneously it lessens the loss of heat.

Antipyrin lowers the temperature exclusively by bringing about increased loss of heat. There is no diminution in the production of heat; *per contra*, it, in small doses, at first increases the production of heat. The rise in temperature after puncture of the brain is a regulative disturbance, and the reason why antipyretic drugs have so little effect upon healthy men and animals is the perfection of their heat-regulating mechanism.

The results of experiments upon animals agree with the clinical indications drawn at the bedside. Whenever our main object is to lower high temperature quickly, and as safely as possible, we choose a member of the antipyrin group. For long-continued antipyretic treatment, on the contrary, we give the preference to quinine (*Archiv. f. exp. Pathol. u. Pharm.*, xxviii., p. 167).



## 2. Phenocoll hydrochlorate.

This body, an ally of phenacetin, is an addition to the group of antipyretic and anti-rheumatic remedies, and has been reported upon by Dr. Hertel (*Deut. med. Wochenschr.*, April 9). It is a white powder, in small crystals, with a bitter taste, and soluble in sixteen parts of water at 62° F. According to Kobert it is not poisonous to animals, and has no deleterious effects on the blood, while Von Mering found that 22 grains produced no symptoms in a rabbit, and that in pneumonia and typhus 15 grains acted as a trustworthy antipyretic, reducing temperature about 2° C., and never causing collapse or cyanosis. The amount of sweating was about the same as after large doses of antipyrin. Of phenocoll a dose of 15 grains equals in its antipyretic action 23 to 30 grains of antipyrin, and 12 to 15 grains of phenacetin. Doses of 7 to 15 grains acted well as an antineuralgic. Hertel gave it in doses of 7 to 15 grains in cases of phthisis and rheumatism. The following is a summary of his results:—In phthisis, single doses of 7 grains lower the temperature about  $\frac{1}{2}$ ° C. for a short time. Doses of 7 grains given hourly for three hours reduce the temperature about 1° C., but not with certainty; the reduction lasts only a short time. Doses of 15 grains cause reduction of temperature, 1° to 1½° C., in a few hours, the reduction generally lasting about two hours. Seventy-five grains given during twenty-four hours generally keep the temperature normal. The subsequent rise of temperature is regular, and unaccompanied by rigors or sweating. In acute rheumatism the same dose keeps the patient free from pain, but scarcely reduces the temperature, which only falls when the joint affections improve. It has no effect in gonorrhœal rheumatism. The urine, after about 75 grains have been taken, becomes brownish-red or dark brown in colour, becoming deeper-coloured on exposure to the air. On adding solution of perchloride of iron, a dark colour is produced, which clears up some what with strong sulphuric acid, but does not disappear entirely, and by transmitted light shows a peculiar greenish colour. Phenocoll is excreted very quickly, as this reaction is not obtained for more than about twelve hours after the last dose. No disturbance of the heart, respiration, or digestion was ever observed. It should not be kept in watery solution, as it decomposes slowly. Hertel states that he was very favourably impressed with the general results of its use, and advises further observations (*Brit. Med. Journal*, Suppl., May 2, 1891).

## 3. Phenacetin in influenza.

Dr. Clemow (*Brit. Med. Journal*, June 27, 1891) fully corroborates the testimony of other observers as to the excellent effects

of phenacetin in epidemic influenza. He usually gives 5 to 10 grains, either in cachets or suspended in milk, to be repeated in an hour if the pains are not fully relieved, and then every four hours until further directions. He is fully convinced of the superiority of this drug over antipyrin and salicin, and has met with no bad symptoms from its use. The greater rapidity with which the pains are relieved is very striking, and phenacetin takes rank as one of the most valuable analgesics.

### ANTISEPTICS.

#### 4. Benzoate of $\beta$ -naphthol.

The insolubility of the higher aromatic compounds has till recently been a great obstacle to their study as antiseptics. The naphthols, especially  $\beta$ -naphthol, have been for some time administered as intestinal antiseptics, but it was soon found that a compound of  $\beta$ -naphthol with salicylic acid, introduced under the name of betol, was more efficient. This substance varied considerably in composition, and was also inadmissible when, on account of renal disease, salicylic acid was contra-indicated.

MM. Yvon and Berlioz have prepared a benzoate of naphthol which is soluble in alcohol or chloroform, feebly soluble in water or ether. This compound, when introduced into the intestine, breaks up into  $\beta$ -naphthol (which remains in the intestine) and benzoic acid, which is eliminated by the kidneys in the form of alkaline salts, and alkaline hippurates. (1) It is very slightly poisonous; (2) it is an antiseptic as powerful as its congeners; (3) it encourages diuresis, the absorbed portion being rapidly eliminated by the urine; and (4) it can be given in large doses, but it is advised to give small and frequently-repeated doses rather than single large quantities. More than a drachm daily has been administered to an adult (*Brit. Med. Journal*, Suppl., Nov. 7, 1891).

Dr. F. W. Burton, in a paper on Putrefactive Decomposition in the Intestinal Tract (*Brit. Med. Journal*, April 4, 1891), cites several cases of typhoid fever and of tuberculous ulceration of the bowel, in which  $\beta$ -naphthol was given with marked benefit—2 to 8 grs. every few hours. It checked the diarrhœa, and lessened the offensive odour of the stools.

5. Iodphenin is formed by treating with iodine phenacetin to which some hydrochloric acid has been added. It can be obtained in steel-blue crystals, and is almost insoluble in water, but soluble in alcohol. Herr Scholvién brought iodphenin before the Berlin Pharmaceutical Society as a compound possessing



extraordinary germicide properties. It is claimed that five minutes' contact with a 1 in 5,000 solution of iodphenin renders *staphylococcus aureus* incapable of further developing (*Pharm. Journal*, May 30, 1891, from *Apot. Zeit.*).

#### 6. Salicylic acid.

It has long been known that the salicylic acid prepared by Kolbe's reaction from commercial phenol (carbolic acid) contains a variable quantity of impurity or impurities. Therapeutic observation has disclosed the fact that both the commercial salicylic acid and that purified by dialysis produce effects, when administered to the human subject, which are not observed to result from the administration of the pure salicylic acid prepared from the methyl salicylate contained in the natural oil of wintergreen. Many years ago the late Mr. John Williams demonstrated experimentally that the artificial salicylic acid, as met with in commerce, contained an admixture, to the extent of some 15 per cent., of another acid, which he considered was probably derived from cresylic acid. The subsequent observations of Professor Latham—that artificial salicylic acid had a different effect when administered medicinally from that of the natural acid—increased the doubt as to the fitness of the artificial acid for medicinal purposes, but beyond that no great attention was paid to the matter. At a still later period Professor Charteris ascertained, from direct experiments with the artificial and natural salicylic acid, that there was a distinctly different physiological effect when one or other of them was administered, and that while the natural acid produced no bad effects, the artificial acid was decidedly toxic. It therefore became important to examine more closely the characteristics of the adventitious substance or substances associated with the salicylic acid obtained synthetically from carbolic acid, and to seek for some efficient means of purification by which the objectionable admixture might be eliminated.

It is to this latter problem that Professor Dunstan has directed his attention, and he has succeeded in defining the nature of the above-mentioned impurities, and after many unsuccessful attempts has devised a method of purification which appears to be capable of separating the true salicylic acid from the other acids which are associated with it in the artificial product met with commercially (*Dubl. Journal Med. Sci.*, Dec., 1890, from *Pharm. Journal*).

#### 7. Sulphite of zinc.

Twenty years ago, in a paper read before the British Pharmaceutical Conference at Liverpool, Professor Tichborne called attention to the possible value of zinc sulphite as an antiseptic (*Pharm. Journal*, [3] i., 351). Recently he has again suggested it as a

material for the preparation of antiseptic dressings; and Dr. Heuston (Adelaide Hospital, Dublin) reports that for this purpose he has found it superior to sal alembroth, it being non-poisonous, non-irritative, and highly antiseptic (*Brit. Med. Journal*, Nov. 8, p. 1064). Professor Tichborne states that zinc sulphite is best prepared by mixing in solution six parts of zinc sulphate and five and a quarter parts of sodium sulphite. The reaction takes place slowly, but goes on to completion, the new salt, which forms as a white crystalline precipitate, being very insoluble in water, though soluble in excess of sulphurous acid. Dried at  $100^{\circ}\text{C}$ ., it has the composition represented by the formula  $\text{ZnSO}_3 \cdot 2\text{H}_2\text{O}$ ; but if only dried at the ordinary temperature, it contains another molecule of water. In contact with water it undergoes a slow but regular oxidation, which in an experiment with a saturated solution was complete on the eighteenth day. Zinc sulphite can be used for the saturation of any fabric, such as gauze or lint, without the intervention of an adhesive material. The fabric is first boiled with water, to cleanse and sterilise it, after which a boiling solution of zinc sulphate and sodium sulphite in equivalent proportions is poured upon it, and when thoroughly mixed and saturated, the whole is allowed to stand for twelve hours. The zinc sulphite is said to be deposited in and about the fibres of the fabric in microscopic crystals, soft and even unctuous to the touch. The fabric is then passed under rollers submerged in water, to remove traces of sodium sulphate. It is suggested that this kind of dressing might be dyed with an organic pigment, to distinguish it from others, and for the purpose of indicating the progress of the discharges by the action of liberated sulphurous acid on the colour (*Pharm. Journal*, Nov. 20, 1890).

#### **S. Creolin.**

A number of instances were adduced in previous "Year-Books" in contravention of the asserted non-poisonous qualities of creolin. Some important evidence as to the action of creolin on the human subject may be gathered from a thesis on that compound published at Breslau during the course of this year. Dr. Bitter, the author, notes that creolin has already been used in more than 2,000 midwifery cases at Breslau. As appears to be the case with nearly every new compound of the kind, the results, according to Drs. Born and Bitter, are most encouraging. In four of the midwifery cases, however, symptoms of poisoning occurred during the administration of a course of creolin injections. Three of the patients were suddenly seized with feelings of restlessness, anxiety, nausea, darkness before the eyes, and a tendency to syncope. The most peculiar feature in these cases was a strong



flavour of tea or smoke in the mouth, of which all the patients complained. This symptom lasted for a long time, whilst the nausea, etc., disappeared immediately upon the discontinuance of the vaginal injections of creolin. The fourth case was more severe; the patient suffered from great restlessness and prostration for several days after the injections were left off. About thirty-six hours after the beginning of the attack, the urine, drawn off with the catheter, was very dark and strongly albuminous. Within a few days these symptoms of acute nephritis disappeared. Dr. Bitter advocates creolin as superior to other disinfectants on account of its "relatively" (*sic*) non-poisonous qualities, its excellence as a deodoriser, and its blandness when applied to skin, mucous membranes, and wounds. It neither dries the vaginal mucosa nor causes any contraction of the canal. Creolin has no special hæmostatic action. Dr. Bitter finds that there are disadvantages in creolin, as the emulsions employed for injections are opaque, and the preparation of creolin usually on sale appears to be unstable (*Brit. Med. Journal*, Dec. 13, 1890).

**9. Hydro-naphthol** has been before the profession for some time, but, as was pointed out in the "Year-Book" for 1890, p. 304, its powers as a germicide are differently estimated by different observers.

Dr. T. H. Bryce (*Brit. Med. Journal*, Nov. 22, 1890) has investigated its action in the Bacteriological Laboratory, Glasgow. His experiments were all made upon one organism, *staphylococcus pyogenes aureus*, and with a solution of hydro-naphthol in rectified spirit and glycerine. The pure drug is insoluble in water, and this is undoubtedly a disadvantage. He concludes that, when dissolved as above, it is a powerful antiseptic agent, in a strength of 1 in 400.

The standard solution 1 in 100 is thus made:—

Hydro-naphthol	...	...	...	1 part	} 1 part.
Rectified spirit	...	...	...	10 parts	
Glycerine	...	...	...	...	
					9 parts.

**10. Aristol**, a proposed substitute for iodoform which was noticed in the last "Year-Book," does not appear to have since attracted much attention. The contradictory experiences that have been reported may, perhaps, be partly explicable by variation in the quality. Herr Reuter finds that some specimens of aristol (dithymol diniodide) contain alkaline iodide and free iodine. But the question arises whether an absolutely pure preparation is advantageous, for it would seem that pure aristol is so stable that it would be less likely to act as a bactericide than a prepara-

tion rendered unstable by the presence of more or less free iodine or alkaline iodide (*Pharm. Journal*, from *Apot. Zeit.*, Jan. 28, 1891; cf. Pollak, *Therap. Monatsh.*, December, 1890). Professor Ferrari, of Catania, finds aristol to be inferior to iodoform as a local application in venereal diseases. **Europhen** (*isobutyl-orthocresol iodide*), another rival of iodoform, is reported upon by Drs. Siebel and Eichhoff (*Therap. Monatsh.*, July, 1891). **Dermatol**, a basic gallate of bismuth, has also been proposed as an antiseptic application (*Therap. Monatsh.*, July, 1891).

### 11. Apomorphine and apocodeine.

Dr. Murrell (*Brit. Med. Journal*, Feb. 28, 1891) has made some interesting observations upon the value of these drugs as expectorants in the treatment of chronic bronchitis. Apomorphine can be given by the mouth in comparatively large doses ( $1\frac{1}{2}$  to 2 grains three times a day) without exciting vomiting or inconvenience. It may be applied successfully in the form of ointment ( $\frac{1}{8}$  gr. to 3i.), and is valuable in the bronchitis of children.

A neutral solution of apocodeine can be injected hypodermically ( $\frac{1}{8}$  grain) without causing local irritation. It rarely produces nausea or vomiting, and is an effective expectorant. From 3 to 4 grains may be administered daily with perfect safety.

**12. Diuretin** was referred to in the "Year-Book" for 1891, and has since attracted some attention. It is now generally understood to be merely a mixture of the obromine sodium and sodium salicylate. It is very unstable, and is decomposed by all acids, even by the  $\text{CO}_2$  of the atmosphere (Lambert).

Dr. Geisler speaks well of the drug, and states that it raises the blood pressure (*Berlin. Klin. Wochensch.*, April, 1891), while Dr. Drozdovsky, of St. Petersburg, sums up by saying that diuretin (a) has no influence on the heart, (b) is very unreliable as a diuretic agent, and (c) cannot advantageously be used as a substitute for digitalis, adonis, strophanthus, and other allied remedies (*Brit. Med. Journal*, Oct. 10, 1891).

The dose of diuretin required is large, viz., 5 to 7 grammes a day; the drug is expensive; and upon the whole, its claim for recognition does not appear to be a strong one.

### 13. Sulphonal.

Dr. Stewart, of Philadelphia, states that sleep can be readily induced by sulphonal, *within a few minutes*, by the simple expedient of dissolving the dose of sulphonal in about 6 fl. oz. of boiling water, the patient taking the liquid as hot as can be borne (*Brailvaite's Retrospect*, from *Philad. Med. News*, Jan. 1, 1891).

Vorster (*Therap. Monatsh.*, Jan., 1891) reports favourably of



the use of sulphonal in asylum practice, especially in acute melancholia and acute mania.

#### **14. Cantharidin in phthisis.**

In view of the conflicting statements that have been made as to the preparation and dose of the liquid used by Dr. Liebreich in the treatment of tuberculosis under the name "cantharidinate of potash," it may be convenient to put on record what is understood to be the exact formula, which has been kindly communicated by Dr. C. Schacht, of Berlin. In preparing the liquid 0·2 gram. of cantharidin and 0·4 gram. of potassium hydrate (or 0·3 gram. of sodium hydrate) are weighed with great exactness, and heated in a flask of one litre capacity on a water-bath with about 20 c.c. of water, until a clear solution results. Water is then added quite gradually, while the heat is continued, until the mark is nearly reached, and then, after cooling, the whole is made up exactly to one litre with water. A litre of the liquid therefore contains 2 decigrams of cantharidin, and each cubic centimètre contains one-tenth of a milligram (*Pharm. Journal*, March 28, 1891).

This drug is not, as in the case of "tuberculin," open to the imputation of being a secret remedy. It, however, is liable to induce toxic symptoms, and the reports in the literature of the past year, when put together, give little encouragement for its employment in the treatment of tuberculosis (*cf. Brit. Med. Journal*, May 9 23, 30, 1891).

## SELECTED LIST OF NEW BOOKS, NEW EDITIONS AND TRANSLATIONS.

- Acland, Sir H. W.—"Oxford and Modern Medicine: a letter to Dr. James Andrew." *Clarendon Press*. 8vo. 1s. 6d.
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# INDEX TO AUTHORS QUOTED.

- Abadie, 408.  
 Abelmann, 136.  
 Acland, 237.  
 Adams, 262.  
 Adamuck, 414.  
 Adler, 99.  
 Alexander, 290, 341, 353.  
 Alexsévsky, 149.  
 Allingham, 247.  
 Althaus, 301.  
 Altichieri, 115.  
 Aumann, 53.  
 Anderson, 262.  
 Anderson, M. 105.  
 Anderson, W. 191.  
 Anger, 281.  
 Ascher, 338.  
 Ansemoot, 408.  
 Ansiaux, 408.  
 Andry, 315.  
 Auerbach, 433.  
 Aulde, 13, 27, 129.  
 Auvard, 365, 371.  
 Babtschinsky, 202.  
 Bacelli, 54.  
 Bacon, 424.  
 Baginsky, 44.  
 Bagshawe, 61.  
 Balfour, 19.  
 Ball, 151, 296.  
 Bantock, 321.  
 Bar, 371.  
 Barbour, 361.  
 Barclay, 419, 420.  
 Bardeleben, 239.  
 Bardenheuer, 255.  
 Bardet, 157.  
 Baretinski, 240.  
 Barker, 227.  
 Barnes, 124.  
 Barnfather, 199.  
 Barling, 220.  
 Barr, 128.  
 Barrt, 110.  
 Barth, 428.  
 Ba-tianelli, 237.  
 Batey, 434.  
 Battle, 277.  
 Baumgarten, 423.  
 Bazilevitch, 307.  
 Bazy, 222, 232.  
 Beale, 431.  
 Beaumetz, 73, 144, 153, 173, 196.  
 Beaumont, 402.  
 Beck, 177.  
 Becker, 401.  
 Beckh, 146.  
 Belfield, 283.  
 Bell, 189, 294.  
 Beltz, 205.  
 Benda, 208.  
 Benedikt, 116.  
 Bennett, 243, 243.  
 Bentley, 149.  
 Berezovsky, 97.  
 Berger, 236.  
 Bergoiné, 444.  
 Berillon, 120.  
 Berlin, 75.  
 Bernloz, 451.  
 Bernheim, 74, 118, 119.  
 Berry, 432.  
 Berrys, 234.  
 Bernier, 311, 391.  
 Betrix, 338.  
 Betz, 435.  
 Beyer, 201.  
 Benier, 55.  
 Billroth, 220.  
 Binet, 152.  
 Bird, 232.  
 Biss, 143.  
 Ritter, 453.  
 Blackman, 430.  
 Blance, 350.  
 Blerhach, 127.  
 Bliss, 422.  
 Blodgett, 40.  
 Blumenau, 131.  
 Boardman, 379.  
 Book, 220.  
 Boeckel, 228.  
 Boer, 377.  
 Boerhaave, 409.  
 Bogroff, 433, 443.  
 Bohland, 80.  
 Bokai, 432.  
 Bollinger, 72.  
 Bond, 207.  
 Born, 453.  
 Botey, 76.  
 Bouilly, 321.  
 Boullock, 41.  
 Bousquet, 371.  
 Bouvret, 181.  
 Bowlby, 195, 222.  
 B ymond, 181.  
 Bramwell, 119.  
 Brackett, 273.  
 Bradford, 253.  
 Bradfute, 10.  
 Braidwood, 100.  
 Braine, 211, 255.  
 Bravo, 203.  
 Brennecke, 335.  
 Brosen, 447.  
 Bresslauer, 95.  
 Brewer, 313.  
 Bristows, 237.  
 Broadbent, 23, 30.  
 Broca, 230.  
 Brocq, 393.  
 Cronner, 3, 234.  
 Brooke, 392, 394, 432.  
 Bröse, 360.  
 Brown, 242, 447.  
 Browne, 257, 438.  
 Bruce, 29.  
 Brunon, 363.  
 Branton, 29, 31, 211.  
 Bryant, 246, 282, 297.  
 Bryce, 454.  
 Brydow, 100.  
 Buerker, 446.  
 Bulau, 235.  
 Bulkley, 388.  
 Bull, 242, 402.  
 Basin, 130.  
 Burghard, 309.  
 Burhardt, 418.  
 Burkner, 423.  
 Burnet, 157.  
 Burnett, 422.  
 Burton, 451.  
 Camerer, 185.  
 Cameron, 353.  
 Camo, 410.  
 Cantani, 438.  
 Cantini, 52.  
 Capart, 434.  
 Capitan, 72.  
 Cardanelli, 26.  
 Cardew, 23, 35.  
 Carpenter, 13.  
 Carreau, 186.  
 Casanelli, 170.  
 Caselli, 82.  
 Castano, 304.  
 Castel, 308, 311.  
 Castellan, 309.  
 Castle, 179.  
 Castorain, 408.  
 Cattani, 110.  
 Chaffey, 279.  
 Champneys, 347.  
 Charcot, 164.  
 Charles, 397.  
 Chavasse, 249.  
 Chelmowski, 81.  
 Cheyne, 42, 57, 59, 217, 326, 390.  
 Chiari, 68.  
 Chichester, 311.  
 Chipault, 231.  
 Cholewa, 447.  
 Clark, 249.  
 Clarke, 229, 242, 289.  
 Clement, 81.  
 Clémont, 450.  
 Clernal, 118.  
 Clouston, 121.  
 Cloy, 146.  
 Cobemall, 149.  
 Cohen, 10, 18, 23, 27, 32.  
 Cohnstein, 355.  
 Collier, 145, 426.  
 Combemarie, 81.  
 Comby, 281, 303.  
 Cooke, 111.  
 Copeman, 177, 180.  
 Cornill, 52, 74, 443.  
 Coppland, 236.  
 Courvoisier, 254.  
 Cousins, 224.  
 Coward, 304.  
 Cramer, 152, 208.  
 Crédé, 403, 405.  
 Crick, 205.  
 Cripps, 247, 295.  
 Crocker, 390, 395.  
 Cséri, 189.



- Cacca, 374.  
 Cunningham, 287.  
 Curnow, 8.  
 Cuvillier, 420.  
 Czerny, 297.  
  
 Dakin, 354.  
 Dalton, 239.  
 Damont, 419.  
 Dane, 265.  
 Daniels, 152.  
 Danillo, 114.  
 Darier, 408.  
 Darwin, 409.  
 Davidson, 235.  
 Davis, 136.  
 Dehio, 88.  
 Delageniere, 340.  
 Delbet, 338.  
 Delépine, 58.  
 Dell'Acqua, 112.  
 Demours, 409.  
 Dentu, 321.  
 Desnos, 100, 191.  
 Despaguet, 416.  
 Deuch, 421, 423.  
 De Wecker, 412.  
 Diamantberger, 195.  
 Dickey, 200.  
 Diday, 301, 302, 308.  
 Dieffenbach, 409.  
 Diller, 104.  
 Doléris, 329.  
 Donath, 106.  
 Doran, 321, 357.  
 Dorr, 381.  
 Downie, 434.  
 Doyen, 321.  
 Draskul, 445.  
 Drosdovsky, 455.  
 Duckworth, 194.  
 Ducrey, 313.  
 Dudley, 340.  
 Duffey, 237.  
 Dühring, 393.  
 Duncan, 321.  
 Dunstan, 452.  
 Dyer, 100.  
 Dyond, 107.  
  
 Ebstein, 55, 187.  
 Eddowes, 82.  
 Edebohs, 335, 341.  
 Edmunds, 135.  
 Edwards, 287.  
 Erasme, 198.  
 Ehlers, 300.  
 Ehrlich, 51.  
 Ehrhardt, 308.  
 Eich, 306.  
 Eichoff, 455.  
 Elischer, 345.  
 Ellis, 378.  
 Elsenberg, 74.  
 Engstrom, 354.  
 Eröss, 383.  
  
 Esson, 106.  
 Ewald, 49.  
  
 Falk, 122.  
 Fano, 408.  
 Farner, 379.  
 Faulkner, 433.  
 Favrat, 79.  
 Favre, 398.  
 Fehling, 333.  
 Felkin, 118.  
 Fenwick, W. S., 204.  
 Fenwick, H., 234.  
 Ferguson, 374.  
 Fernwald, 380.  
 Ferrara-Bardile, 54.  
 Ferrari, 455.  
 Feulard, 75.  
 Fiano, 423.  
 Filippow, 256.  
 Fink, 255.  
 Finkler, 55.  
 Fischella, 307.  
 Flaischen, 310.  
 Flatau, 50, 148.  
 Flint, 154.  
 Flor, 409.  
 Flynn, 100.  
 Folsom, 88.  
 Forestier, 188.  
 Forgue, 212.  
 Foster, 28.  
 Fourgeray, 418.  
 Fournier, 308, 391.  
 Fowler, 250, 299.  
 Fox, 34, 110.  
 Fraenkel, A., 44.  
 Fraenkel, B., 43.  
 Fraentzel, I, 2, 3, 5, 15, 17, 24.  
 Fraigniaud, 40.  
 Fränkel, 235, 436, 442.  
 Frankenhauser, 327, 329.  
 Franks, 229, 249.  
 Frantmann, 420.  
 Fräntzel, 236, 437.  
 Prayer, 287.  
 Freund, 321.  
 Froche, 111.  
 Fukala, 415.  
 Fürbringer, 50.  
 Fussell, 256.  
  
 Galabin, 364.  
 Galezowski, 408, 409.  
 Galliard, 100.  
 Gamper, 131.  
 Gancel, 111.  
 Gardner, 189.  
 Garel, 435.  
 Garrigues, 346, 378.  
 Geisler, 455.  
 Georges, 142.  
 Georgi, 165.  
  
 Gerhardt, 55.  
 Gernony, 443.  
 Gibney, 265.  
 Gilbert, 149.  
 Gimlette, 287.  
 Gingsot, 26.  
 Gleich, 211.  
 Gleitzmann, 415.  
 Gluck, 445.  
 Glucksziegel, 146.  
 Golbroloff, 431.  
 Godlee, 236.  
 Godson, 361.  
 Goodhart, 135.  
 Gordon, 89, 91, 147.  
 Gottlieb, 449.  
 Gottschalk, 358.  
 Gould, 236, 250, 252, 256.  
 Grabanès, 51, 437, 440.  
 Graham, 120, 374.  
 Grafe, 411.  
 Gram, 173.  
 Grammatikati, 377.  
 Grandclément, 417.  
 Grandmont, 404, 417.  
 Grasset, 70.  
 Green, 424.  
 Greflier, 280.  
 Gregory, 13.  
 Grödel, 109.  
 Gross, 228.  
 Grove, 418.  
 Grüttner, 443.  
 Gualdi, 79.  
 Guéniot, 369.  
 Guépin, 408.  
 Guernonprez, 213.  
 Guillemain, 406.  
 Guntz, 201.  
 Gunzburg, 140.  
 Gussner, 359.  
 Guthrie, 431.  
 Guttman, 49, 51, 55, 114, 193.  
 Guttstadt, 54.  
 Guyon, 286.  
  
 Halbertina, 374.  
 Hallopeau, 39, 99.  
 Hamilton, 141.  
 Hammond, G. M., 94.  
 Hammond, W. A., 9.  
 Handford, 236.  
 Hanika, 314.  
 Harbordt, 239.  
 Hardy, 99.  
 Hare, 98.  
 Harley, 155.  
 Harries, 97.  
 Harrington, 192.  
 Harris, 150.  
 Harrison, D., 223.  
 Harrison, R., 289, 290.  
 Hart, 118.  
 Hartmann, 257.  
  
 Hay, 105.  
 Hayem, 158, 198.  
 Hayes, 248, 366.  
 Heiman, 424.  
 Helary, 240.  
 Henoch, 51.  
 Henocque, 71.  
 Henry, 8.  
 Hernan, 348, 365.  
 Heron, 59, 61, 440.  
 Herrick, 342.  
 Herringham, 159.  
 Herrlich, 165.  
 Hersch, 103.  
 Hershey, 144.  
 Hertaux, 2-0.  
 Hertel, 193, 450.  
 Hesselbach, 164.  
 Heubner, 160.  
 Hewitt, 211.  
 Hewland, 176.  
 Heymann, 441.  
 Hill, 424.  
 Hills, 13.  
 Hime, 58.  
 Hinz, 149.  
 Hirigoyen, 375.  
 Hochhalt, 444.  
 Hocheuerg, 253.  
 Höchstenbach, 376.  
 Hoffman, 174.  
 Holden, 100.  
 Holmes, 177.  
 Homans, 332.  
 Horsley, 105, 280.  
 Huber, 137.  
 Huchard, 25, 32, 124.  
 Hulke, 224, 246.  
 Hulm, 224.  
 Humphreys, 181.  
 Hunter, 42, 62.  
 Huntington, 240.  
 Hutchinson, 191.  
 Hutena, 200.  
  
 Ignatieff, 112.  
 Illingworth, 290.  
 Imrédy, 167.  
 Irsay, 444.  
 Israel, 50.  
 Iversen, 297.  
  
 Jaccond, 72, 102.  
 Jackson, 33.  
 Jacobs, 321.  
 Jacobson, 256.  
 Jaenicke, 420.  
 Jaesche, 415.  
 Jaffé, 221.  
 Jaksch, 139, 165.  
 Jamieson, 396.  
 Jarisch, 69.  
 Johnson, 211.  
 Johnston, 420.  
 Jones, 232.  
 Jones - Humphreys, 137.

- Jordens, 199.  
 Jorissenne, 375.  
 Judson, 259.  
 Jullien, 311.  
 Jurgans, 69.  
 Justo, 208.
- Kahler, 189, 195.  
 Kalt, 417.  
 Kaltenbach, 356.  
 Kanasugi, 435.  
 Kopper, 233, 433.  
 Kaposi, 39, 393.  
 Karfeld, 147.  
 Katzenbach, 192.  
 Kayser, 434.  
 Keegan, 287.  
 Keetley, 65, 241.  
 Ken, 250.  
 Keith, 342.  
 Keller, 419.  
 Kellgren, 120.  
 Ketch, 260.  
 Keyes, 284.  
 Khrono, 138.  
 Kiener, 85.  
 Kieselbach, 423.  
 Kinura, 223, 240.  
 Kingsbury, 119, 448.  
 Kitusato, 110.  
 Klein, 348.  
 Kleinschmidt, 344.  
 Kleinwachter, 348.  
 Klemperer, 39, 132.  
 Knaggs, 155.  
 Knapp, 204, 424.  
 Knox, 232.  
 Kobert, 165.  
 Koch, 42, 401.  
 Kocher, 227, 338.  
 Kohler, 229.  
 Kolits, 439.  
 Kollf, 368.  
 Konig, 215.  
 Königshofer, 404.  
 Koplik, 136.  
 Koranyi, 69.  
 Körte, 49.  
 Korytn, 150.  
 Kotbar, 146.  
 Koracz, 86.  
 Kowindy, Pomerantz, 173.  
 Kraske, 215.  
 Kraus, 156.  
 Krause, 437.  
 Krull, 156.  
 Kummer, 211, 247, 267.  
 Kurt, 113.  
 Kusnerow, 256.  
 Kuster, 165, 254, 255.  
 Kuttner, 435.
- Labbe, 156.  
 Laenstein, 208.
- Lafleur, 14.  
 Lailler, 107.  
 Landau, 325.  
 Landgraf, 443.  
 Lane, 196, 231, 246, 247.  
 Lang, 231.  
 Langenbach, 253.  
 Lannelongue, 269, 279.  
 Lannors, 419.  
 Larkin, 242.  
 Lassar, 50.  
 Lanzenburg, 352.  
 Lauder, 161.  
 Lauenstein, 227.  
 Laulanie, 350.  
 Lawrence, 82.  
 Lawson, 230.  
 Leahy, 151.  
 Leber, 402.  
 Ledel, 360.  
 Leeds, 136.  
 Legroux, 109.  
 Leloir, 300.  
 Lemaschen, 170.  
 Lemke, 233.  
 Lepine, 170.  
 Leppmann, 138.  
 Lerson, 415.  
 Leser, 237.  
 Leszynsky, 113.  
 Lewaschow, 235.  
 Leyden, 55.  
 Lezty, 3-6.  
 Libbrecht, 416.  
 Liebreich, 73, 441, 442, 456.  
 Lloyd, 65.  
 Lob, 152.  
 Lockwood, 247.  
 Loeffler, 204.  
 Loewe, 174.  
 Löhlein, 366, 379.  
 Lomer, 367.  
 Longetchnikow, 414.  
 Lowenberg, 423.  
 Lowenthal, 266.  
 Lublinski, 442.  
 Lucal, 420.  
 Lucke, 253.  
 Ludwig, 421.  
 Luebmoff, 71, 74.  
 Lamas, 443.  
 Lumtoso, 114.  
 Lusk, 382.  
 Lydston, 116, 270.
- Macewen, 239.  
 Mac Ewan, 221, 248, 252.  
 Macfarlane, 128.  
 Mackinnon, 355.  
 Macintyre, 429, 438.  
 Mackay, 402.  
 Mackenzie, 439.  
 Macleod, 292, 293.  
 Macnamara, 401.
- Macwilliam, 181.  
 Mader, 302.  
 Maerle, 95.  
 Magin, 409.  
 Mann, 91.  
 Malceowsky, 90.  
 Male, 190.  
 Malfilatre, 92.  
 Malgaigne, 409.  
 Malgat, 408, 409.  
 Mancone, 131.  
 Manning, 201.  
 Markus, 378.  
 Marotte, 197.  
 Martins, 53.  
 Martin, 332, 401.  
 Maschke, 404.  
 Masini, 78, 434.  
 Massin, 346.  
 Matheson, 134.  
 Maunoury, 280.  
 Maunsell, 244.  
 Mannango, 241.  
 Maury, 319.  
 Mavisti, 112.  
 Mayberry, 107.  
 Mayet, 89.  
 Maslard, 111.  
 McBeath, 373.  
 McBurney, 178.  
 McFadyean, 72.  
 McHardy, 402.  
 McPhredan, 2.  
 McWilliam, 209.  
 Meij, 372.  
 Menard, 269.  
 Menche, 149.  
 Mendez, 123.  
 Mendoza, 433.  
 Menge, 332.  
 Mercklin, 126.  
 Mering, 168.  
 Méry, 41.  
 Mesnard, 370.  
 Meyer, 148, 225, 360, 409.  
 Michael, 428.  
 Michaud, 228.  
 Michaux, 230.  
 Michelson, 440.  
 Middlenore, 401.  
 Miles, 239.  
 Miller, 30.  
 Milliken, 291.  
 Milton, 337.  
 Minerbi, 151.  
 Minkowski, 136.  
 Mirevitch, 132.  
 Missejevitch, 406.  
 Mitchell, 101.  
 Modhurst, 184.  
 Molony, 100.  
 Moncorvo, 109, 149.  
 Mondhurst, 102.  
 Montyol, 92.  
 Moorhof, 219.  
 Morgan, 269.  
 Moritz, 181.  
 Morris, 273.  
 Morrow, 398.
- Morotti, 285.  
 Morton, 178.  
 Morton, C. A., 65, 228.  
 Morton, W. J., 121.  
 Mosier, 55.  
 Mosny, 40.  
 Moss, 93.  
 Mossé, 200.  
 Moth, 396.  
 Motta, 283.  
 Moure, 444.  
 Muklen, 233.  
 Müller, 147.  
 Murphy, 240.  
 Murray, 233.  
 Murrell, 143.  
 Murrell, 455.  
 Myers, 13.
- Naegery, 104.  
 Naegeraths, 338.  
 Nason, 115.  
 Naumyn, 168.  
 Naumyn, 154.  
 Nauwerck, 439.  
 Navratil, 444.  
 Neilsen, 317.  
 Neisser, 307.  
 Nélaton, 256.  
 Nencki, 165, 174.  
 Nepveu, 191.  
 Neumann, 301.  
 Nolan, 130.  
 Noorden, 225.
- Oberlaender, 287.  
 Obrastow, 410.  
 Oertel, 203, 448.  
 Ollier, 255.  
 O'Neill, 273.  
 Ord, 28.  
 Orthmann, 357.  
 Osier, 270.  
 Ostermayer, 91.  
 Owen, 206, 281.
- Page, 272.  
 Pail, 425.  
 Palmer, 135.  
 Panas, 406, 416.  
 Parinaud, 413, 417.  
 Parisot, 95.  
 Parker, 248.  
 Parkin, 247.  
 Paterson, 96.  
 Patzek, 430.  
 Patteson, 389.  
 Paul, 207.  
 Pawlik, 339.  
 Penas, 321.  
 Pease, 109.  
 Peckh, 147.  
 Peiper, 55.



- Penzoldt, 146.  
 Perron, 418.  
 Petit, 106, 260.  
 Petroff, 70.  
 Peyraud, 112.  
 Pfeiffer, 183, 183.  
 Pflueger, 416.  
 Phelps, 212, 265.  
 Phillips, 237, 446.  
 Phocas, 261, 267.  
 Pic, 270.  
 Picot, 76.  
 Picq, 75.  
 Picchaud, 213.  
 Piper, 110.  
 Pirrari, 111.  
 Pitt, 256.  
 Pitts, 269, 282.  
 Playfair, 274.  
 Poirier, 406.  
 Politze, 424.  
 Polubinski, 148.  
 Polyak, 444.  
 Poncet, 228, 204.  
 Poulet, 106.  
 Powell, 27, 58.  
 Powers, 282.  
 Poynder, 150.  
 Prevost, 152.  
 Prince, 120.  
 Pringle, 64.  
 Prior, 438.  
 Pritchard, 102, 419.  
 Prochownick, 338, 344.  
 Puech, 412.  
 Pulawski, 202.  
 Pyle-Smith, 7.  
 Quénu, 287, 298.  
 Quincke, 55.  
 Quinquand, 391.  
 Quising, 306.  
 Babow, 445.  
 Ralfe, 177.  
 Randall, 422.  
 Randozza, 193.  
 Ranking, 180.  
 Raymond, 196.  
 Reale, 167.  
 Reboul, 219.  
 Reclus, 238.  
 Redard, 211, 265.  
 Regner, 256.  
 Rehn, 298.  
 Reid, 113.  
 Rennenkampf, 444.  
 Renvers, 443.  
 Renzi, 167.  
 Reuter, 451.  
 Rheindorf, 414.  
 Ricard, 266.  
 Rice, 431.  
 Richardson, 257.  
 Richelot, 336.  
 Richmond, 200.  
 Richter, 406.  
 Roberts, 133, 157.  
 Robertson, 306.  
 Robson, 227, 229, 232, 246, 279.  
 Rochard, 221.  
 Roe, 446.  
 Rohren, 420.  
 Roicki, 309.  
 Rosenbach, 442.  
 Rosenbaum, 114.  
 Rosenberg, 156.  
 Rosenbury, 35, 443.  
 Rosenthal, 190, 248.  
 Rothe, 213.  
 Rothmund, 408.  
 Rothschild, 141.  
 Routh, 355.  
 Rozenzweig, 431.  
 Rubinovitch, 95.  
 Ruelle, 205.  
 Ruhl, 341.  
 Rujel, 439.  
 Runge, 406.  
 Russell, 182, 248.  
 Ruysch, 407.  
 Rybalkin, 114.  
 Saalfeld, 443.  
 Sacharjin, 157, 441.  
 Sahli, 165.  
 Salkowski, 180.  
 Sanger, 340.  
 Saundby, 118, 143.  
 Sayre, 265.  
 Schaeffer, 444.  
 Schansoff, 74.  
 Schede, 216, 232.  
 Schelling, 205.  
 Schippers, 206.  
 Sculesinger, 321.  
 Schmidt, 119, 198.  
 Schmitt, 95, 332.  
 Schmitz, 160, 165, 171, 172.  
 Scholvien, 451.  
 Schönborn, 213.  
 Schramm, 317.  
 Schreiber, 55.  
 Schroeder, 338.  
 Schubert, 422.  
 Schucking, 341.  
 Schultze, 55, 439.  
 Schwitzler, 438.  
 Schwabach, 423.  
 Schwartz, 262, 427.  
 Scudder, 259.  
 Sée, 12, 14, 79, 138, 155.  
 Sedziak, 478, 444.  
 Segond, 321, 333.  
 Segre, 307.  
 Seibert, 203.  
 Semmola, 75.  
 Senator, 179.  
 Seun, 53.  
 Sergeiff, 410.  
 Sexton, 421.  
 Seydel, 211.  
 Shaffer, 265.  
 Shaw, 229.  
 Sheppard, 192, 210.  
 Sheshmintseff, 308.  
 Siebel, 453.  
 Silex, 51.  
 Silk, 448.  
 Simmon, 212.  
 Simon, 103.  
 Skene, 317.  
 Skerring, 113.  
 Skerritt, 65, 82.  
 Slehta, 369.  
 Smigrodski, 225.  
 Smith, N., 261, 262.  
 Smith, W. D., 53.  
 Smith, W. G., 176.  
 Smits, 365.  
 Sokolowski, 438.  
 Solow, 120.  
 Sonnenburg, 276, 251.  
 Soutakis, 92.  
 Southam, 284, 291.  
 Spaek, 314.  
 Spencer, 385.  
 Spender, 193, 196.  
 Spitzer, 153.  
 Stadelmann, 158.  
 Stedman, 125.  
 Stein, 95.  
 Stepp, 199.  
 Stewart, 28, 94, 163, 455.  
 Stoker, 435.  
 Strübing, 55, 440.  
 Strumpfeli, 115.  
 Suckling, 127, 131.  
 Sutton, 249, 318, 330.  
 Swayne, 367.  
 Swieczicki, 374.  
 Symonds, 275.  
 Sympon, 169.  
 Syms, 241.  
 Szenes, 419.  
 Szokalski, 401.  
 Tait, 243, 319, 342.  
 Tangi, 440.  
 Tausini, 253.  
 Taylor, 254.  
 Taylor, F., 3, 236.  
 Taylor, J. M., 93.  
 Taylor, S., 20.  
 Taylor, J. C., 141.  
 Taylor, J. W., 241.  
 Tchervinsky, 112.  
 Teale, 234.  
 Teissier, 197.  
 Tenger, 356.  
 Terrillon, 253, 321.  
 Terrier, 211, 339.  
 Thayer, 192.  
 Theobald, 419.  
 Thiersch, 215.  
 Thiriar, 248, 278.  
 Thompson, 93, 427.  
 Thomson, 275.  
 Thorburn, 321.  
 Thornton, 524, 280.  
 Tichborne, 452.  
 Tidy, 175.  
 Tiegler, 321.  
 Tiembieki, 284.  
 Tilden, 178.  
 Tinkham, 347.  
 Tizzoni, 110.  
 Tobin, 284.  
 Taison, 208.  
 Toney, 94.  
 Tott, 408.  
 Tourette, 115.  
 Townsend, 347, 386.  
 Trendelenburg, 223.  
 Treub, 368.  
 Treves, 246, 249, 254, 335.  
 Trouseau, 405, 414.  
 Trowbridge, 107.  
 Trusevitch, 104.  
 Tuffler, 83.  
 Türbringer, 154.  
 Turnbull, 422.  
 Turner, 202.  
 Turbantschitch, 418.  
 Umpfenbach, 90, 105.  
 Ungar, 205.  
 Unna, 391.  
 Uspenski, 76.  
 Vailliant, 110.  
 Valude, 404.  
 Veit, 359.  
 Velits, 331.  
 Verhoogen, 110.  
 Verneuil, 295.  
 Vessale, 234.  
 Vicars, 175.  
 Vickery, 347.  
 Vidal, 391.  
 Vincent, 110.  
 Voelcker, 236.  
 Voigt, 255.  
 Voisin, 125.  
 Voituriez, 97, 351.  
 Vollert, 305.  
 Vorster, 455.  
 Wagner, 208.  
 Waibel, 189.  
 Walker, 156.  
 Wallian, 347.  
 Wallis, 237.  
 Warden, 182.  
 Warlomont, 401.  
 Watson, 123, 152.  
 Waxham, 431.  
 Weber, 55.  
 Wehmer, 212.

- |                     |                       |                   |                    |
|---------------------|-----------------------|-------------------|--------------------|
| Weissblum, 307.     | Wethered, 58.         | Wolfrard, 131.    | Yorke-Davies, 135. |
| Welander, 312.      | White, 240, 303.      | Wood, 105.        | Yvon, 437.         |
| Weller, 403.        | Whitehead, 237.       | Woodburn, 93.     |                    |
| Wells, 211, 241.    | Wilks, 175.           | Worth, 360.       | Zaufal, 418, 422.  |
| Werner, 333.        | Willbrand, 409.       | Wright, 167, 227, | Zessaraskv, 92.    |
| Wertheimer, 355     | Willemin, 155.        | 446.              | Zeuenk, 202.       |
| West, 5, 182, 235.  | Williams, 58, 60.     | Wyeth, 243.       | Ziegenspeck, 321.  |
| Westerschulte, 372. | Winter, 158, 346.     | Wynter, 228.      | Ziegler, 67.       |
| Westphal, 162.      | Wohlgemuth, 166.      |                   | Zuntz, 136.        |
| Westphalen, 439.    | Wolff, 132, 197, 213. | Yeo, 157.         | Zweifel, 321, 332. |



# INDEX TO SUBJECTS.

	PAGE		PAGE
Abdomen, Surgery of ... ..	238	Aromatic and bitter substances ...	131
Abortion, Habitual ... ..	380	Arsenite of copper in diarrhoea ...	149
—, Tubal ... ..	357	Asepsis and antiseptics ...	211
Abscess of the ovary ... ..	315	Asparagus—is it a diuretic? ...	174
—, Treatment of, of the frontal sinuses ... ..	406	Atropine for muscular spasm ...	113
Acid, Lack of, in dyspepsia ...	142	— in cardiac disorder ...	26
Adhesions, Intra-tympanic ...	423	Attic disease ... ..	422
After-pains, The use of arsenite of copper for the relief of ...	379	Aural complications, Dangerous, resulting from rhino-pharyngeal operations or cauterisations ...	427
Albumen, Salicyl-sulphonic acid as a test for ... ..	181	Auricle, Epithelioma of the ...	418
—, Trichloroacetic acid as a test for ...	181	—, Gangrene of the ... ..	413
Albuminuria associated with diabetes ...	160	Auris, Hæmatoma .. ..	418
—, Cyclical ... ..	159		
— in the latter months of pregnancy ...	161	Balanitis, The treatment of ... ..	311
Alcohol ... ..	131	Barium, Chloride of ... ..	13
— and Creasote ... ..	132	Basorin paste, a new base for dermatological preparations ...	399
Alexander's operation ... ..	341	Benzoate of $\beta$ -naphthol ... ..	451
Albin, Action of ... ..	148	Benzole, Treatment of whooping cough by pure ... ..	206
Alopecia areata ... ..	395	Bichromate of potash, Treatment of diphtheria by ... ..	201
Ammonium bromide and antipyrin ...	105	Bile-ducts, Calomel in affections of the ... ..	157
Anylene hydrate ... ..	105	Bitter and aromatic substances ...	131
Anæsthetics ... ..	209	Bladder and intestines, Cases in which a non-malignant communication existed between ...	290
Angina, Cardiac pain and ... ..	31	Bladder, Stone in the ... ..	2-7
— pectoris, Discussion on ... ..	27	Blood-vessels, Surgery of ... ..	221
—, Prognosis and treatment of ...	30	Bones and joints, Surgery of ... ..	225
Ankylosis of the knee in children, Curved linear osteotomy for the treatment of ... ..	267	Books, new editions and translations, Selected list of new ... ..	457
Anodal diffusion ... ..	96	Boric acid ... ..	148
Anorexia ... ..	146	—, Treatment of diphtheria by ...	201
Antifebrin in hard and soft chancres ...	307	Brain, Surgery of ... ..	228
— in the fever of phthisis ... ..	79	Bright's disease, Paroxysmal pulmonary œdema in ... ..	161
— and carbolic acid in tetanus ...	111	Bromide of ethylene ... ..	106
— and resorcin, Treatment of typhoid fever by ... ..	199	— of gold ... ..	105
Antimony, On the value of, in various inflammatory affections of the skin ... ..	396	— of potassium ... ..	106
Antipyretics ... ..	448	Bromoform in whooping cough ...	206
Antipyrin ... ..	105, 109	Broncho-pneumonia, The origin and prevention of, in children ...	40
— in pleuritic effusion ... ..	84	Brown-Séquard's fluid in tuberculosis ...	76
— in puerperal pyrexia ... ..	378	Buboes, The abortive treatment of, by injections of benzoate of mercury ...	312
Antisepsis and asepsia ... ..	211	Butyl chloral ... ..	98
—, Intestinal, in chronic affections of large intestine ... ..	153		
Antiseptics ... ..	451	Cachexia strumipriva after removal of the thyroid for goitre ...	492
Antiseptic, Sulphate of copper as ...	379	Cactus grandiflorus ... ..	18
Anus, The treatment of fissured, based on a new view of its pathology ... ..	296		
Apomorphia ... ..	105		
Apomorphine and apocodeine ...	455		
Aristol ... ..	454		
— in venereal diseases ... ..	307		

	PAGE		PAGE
Cæsarian section ... ..	372	Chorea, General treatment of ...	109
Calculus, Hæmorrhagic pyetitis after		Club-foot, Treatment of... ..	265
passage of a renal ... ..	178	Cocaine ... ..	98
—, The importance of the post-pro-		— in labour ... ..	371
static pouch in the surgery of		Cocainism, Chronic ... ..	122
vesical ... ..	237	Cold in the head, Treatment of	445
Calomel in affections of the bile-ducts	157	Colic, Hepatic and gall stones	154
—, Dysentery following intra-		Coma, diabetie, Treatment of...	171
muscular injection of ... ..	152	Conical stumps in childhood ...	281
Camphoric acid in the sweating of		Conjunctivitis, Treatment of, by	
phthisis ... ..	80	crude petroleum ... ..	405
Cancer of the cervix, The condition of		— and granular lids, Treatment of	
the mucous membrane of the		chronic ... ..	406
uterus in ... ..	345	Copper, The use of arsenite of, for	
rectum, The newer operations		the relief of after-pains ... ..	379
for ... ..	297	—, Arsenite of, in diarrhoea ...	149
Cannabis indica, Uses of ... ..	127	—, Sulphate of, as an antiseptic	379
— in dyspepsia ... ..	138	Cornea, The indications for suture in	
— and chloral hydrate in		wounds of the ... ..	409
tetanus ... ..	111	Cranial surgery in childhood ...	277
Cantharidin in phthisis ... ..	456	Cranioectomy ... ..	279
— Action of, on tubercular throat		Cresote and alcohol ... ..	132
conditions ... ..	441	Creolin ... ..	453
Cantharidinate of potash in tubercu-		—, Treatment of chronic eczema by	339
losis ... ..	73	— in dysentery ... ..	152
Carbolic acid in tetanus ... ..	111	Croup, Treatment of laryngeal ...	435
Carbon dioxide solution ... ..	97	Curette, The use of the, in puerperal	
Carcinoma, Extirpation of, high up in		endometritis ... ..	330
the rectum, by means of two suc-		Curetting, The danger of ... ..	346
cessive operations ... ..	298	Curvature of the spine, Treatment of	
Cardiac disease, Venesection in ...	14	lateral ... ..	258
— disorder, Atropine in ... ..	26	—, Treatment of posterior	
— pain and angina ... ..	31	rachitic ... ..	260
— remedies, General review of ...	5	Cyanide of mercury, Treatment of	
— strain, Treatment of ... ..	23	diphtheria by... ..	205
— Toxic disturbance ... ..	27	Cypress oil, Treatment of whooping	
Cascarin, Dangers of ... ..	149	cough by essential ... ..	236
Cataract, Treatment of prolapse of		Cystinuria ... ..	176
the iris after simple operation for	413	Cystitis in diabetes ... ..	172
Cerebral syphilis, Energetic inun-		Cystotomy, A new vesical speculum	
ctions in ... ..	302	for use in supra-pubic ... ..	289
Cervix uteri, The condition of the		Cysts, Thick-walled tube ... ..	333
mucous membrane of the uterus		—, Tubo-ovarian, and allied condi-	
in cancer of the ... ..	345	tions ... ..	317
—, Primary sarcoma of... ..	344	—, Gas, Vaginitis with ... ..	348
—, Rigidity of ... ..	369	Delivery, Painless ... ..	363
Chauveres, Antifebrin in hard and soft	307	Dermatitis herpetiformis, Treatment	
—, The treatment of simple... ..	338	of ... ..	393
—, The treatment of soft, by		Dermatological preparations, Bas-	
scraping ... ..	303	sorin paste, a new base for ...	399
Childhood, Cranial surgery in... ..	277	Diabetes, Albuminuria associated	
Chloral ... ..	89	with ... ..	160
— antipyrin ... ..	92	—, Cystitis in ... ..	172
— hydrate in tetanus ... ..	111	—, Diet in ... ..	167
—, Treatment of diphtheria by	243	—, Etiology and treatment of	166
— urethane or urallum ... ..	95	—, Glycolytic power of blood in	170
Chloralamide ... ..	90	—, Saccharine diet in ... ..	168
Chlorate of potassium, Effect of, on		diarrhoea ... ..	149
the kidneys ... ..	166	Diet in chronic heart disease ...	15
Chloride of barium ... ..	13	— valvular disease ... ..	15
Chlorine water, Treatment of diph-		— in the senile heart ... ..	15
theria by subcutaneous injections of	203	Dietetics in health and disease ...	133
Chloroform in tracheotomy ... ..	280	Digestion, Action of some recent	
— inhalations, Treatment of whoop-		hypnotics on ... ..	80
ing cough by ... ..	205	Diphtheria, Treatment of ... ..	209
—, Treatment of typhoid fever by...	199	Diphtheritic paralysis, Treatment of	431
Cholagogue, Olive oil as a ... ..	156	Dislocation of the hip, Treatment of	
Cholesteatoma of the tympanum	422	congenital ... ..	265
Chorea ... ..	109		



	PAGE		PAGE
Diuretin ... ..	455	Fallopian tubes, Dilated ... ..	325
Dog's serum, Injection of, in tubercu-	75	Fat, Digestion of ... ..	136
culosis ... ..		Fats ... ..	136
Douche-massage, Treatment of gout		Febrile diseases, The influence of	
by ... ..	188	acute, on the course of chronic	
Dreaming, The treatment of ... ..	128	phthisis ... ..	81
Drug cravings, The treatment of ... ..	121	Fertility and osone ... ..	347
Duboisine sulphate ... ..	91	Fibroids, uterine ... ..	342
Dysentery ... ..	150	Removal of uterus for ... ..	335
Dysmenorrhea ... ..	347	Filix mas, Case of poisoning by ... ..	152
Dyspepsia, Acid ... ..	141	Fingers, Treatment of congenital con-	
—, Gastric acids in ... ..	139	tractions of the ... ..	262
—, General therapeutics of ... ..	138	Fifth cranial nerve, Irritants applied	
—, Hydrochloric acid in ... ..	139	to, for muscular spasm ... ..	113
—, Lack of acid in ... ..	142	Fistula, Treatment of lacrymal ... ..	415
Ear, Diseases of the ... ..	418	Flat-foot as a sequela of rheumatism	192
Eclampsia, Puerperal ... ..	363	Flooding, The dry treatment of ... ..	375
Ectopic pregnancy ... ..	356	Fœtus, Visceral hæmorrhages in the	385
Eczema, Treatment of, in children ... ..	389	Foreign bodies in the meatus ... ..	418
—, in elderly people ... ..	388	Frontal sinuses, Treatment of	
—, chronic, by creolin ... ..	389	abscesses of the ... ..	406
Electric light as an anodyne ... ..	95	Fuchsin in diseases of the pharynx	
Electrical treatment of Graves's		and larynx ... ..	432
disease ... ..	35	Gall-stones and hepatic colic ... ..	154
Electricity, General uses of ... ..	120	Galvanism, The effect of, on the	
—, Treatment of exophthalmic		uterus ... ..	344
gout by ... ..	404	Gangrene of the auricle ... ..	418
—, in tachycardia ... ..	26	Gastralgia ... ..	143
—, The use of, in diseases of the		Gastric acids in dyspepsia ... ..	139
throat ... ..	429	Gastric Ulcer ... ..	143
Electrolysis in rhino-laryngeal sur-		Gastro-ectasis ... ..	144
gery ... ..	445	enteritis ... ..	149
Endometritis in acute disease ... ..	346	Genito-urinary system, Disease of	
—, The use of the curette in puer-		the ... ..	283
peral ... ..	380	Genu valgum and other deformities	
Endocarditis, Acute ... ..	1	of the knee, Treatment of ... ..	266
—, in measles ... ..	191	Glaucoma, Treatment of ... ..	414
Enemata, Cold, in icterus ... ..	156	Gleet, Treatment of, by ergotine ... ..	309
—, Nutrient ... ..	137	Glottis, Prophylaxis against spasm of	
—, Peritonitis following, in dysen-		the, following endo-laryngeal	
tery ... ..	151	manipulations ... ..	434
Epididymitis, The treatment of ... ..	313	Glucose, Test for ... ..	181
Epilepticus, The treatment of status ... ..	107	Glycerine injections and suppositories	148
Epileptoid fits, The urine in ... ..	164	Glycolytic power of blood in diabetes	170
Epithelioma of the auricle ... ..	418	Goat's blood, Injection of, in tuber-	
Epitheliomatous growth of the larynx,		culosis ... ..	74
Removal of, by intra-tracheal		Gout, Acute, during the puerperium	378
injections ... ..	435	—, Cachexia strumipriva after	
Epsom salts in dysentery ... ..	151	removal of the thyroid for ... ..	432
Ergot in phthisical sore throat ... ..	432	Gonorrhea, The abortive treatment	
Erysipelas, Treatment of diphtheria		of ... ..	310
by inoculation of ... ..	202	—, The treatment of, by injections	
Ethyl chloral urethane, or somnal ... ..	93	of carbonate of soda ... ..	309
Ethylene, Bromide of ... ..	106	—, by the introduction of as-	
Euphorine (pheyyl-urethane) ... ..	99	tringent powders into the urethra	314
Mustachean inflations and injections ... ..	423	—, by methyl violet ... ..	309
Exalgine ... ..	99	— and salpingitis ... ..	331
Exophthalmic goitre ... ..	110	Gonorrhœal rheumatism, The treat-	
—, Treatment of, by electricity		ment of ... ..	311
Exostoses ... ..	419	Gout ... ..	183
Extirpation of cancerous uterus after		—, Chemistry of ... ..	183
delivery ... ..	379	— and melancholia ... ..	186
Eye, Disease of the ... ..	401	—, Relation of Heberden's nodes to	186
Faradism in icterus ... ..	156	rheumatism, and rheumatoid ar-	
Fallacies in treatment ... ..	104	thritis ... ..	183
		—, Surgical relations of ... ..	185
		—, Treatment by douche massage	186

	PAGE
Grandiflorus, Cactus ... ..	13
Granular lids and chronic conjunctivitis, Treatment of ... ..	406
Graves's disease ... ..	33
—, Electrical treatment of ... ..	35
—, Surgical treatment of ... ..	34
—, Treatment in general of ... ..	33
Guaiacum ... ..	148
Guaiacol and iodoform, Hypodermic injections of, in phthisis ... ..	76
Gynecology and insanity ... ..	124
Hæmaturia in East Central Africa ... ..	179
— after fresh rhubarb... ..	179
Hæmatemesis ... ..	146
Hæmatoma auris ... ..	418
Hæmatoporphyrin in urine ... ..	180
Hæmato-salpinx without pregnancy... ..	332
Hæmoglobinuria, Paroxysmal... ..	177
Hæmophilia at the menstrual period ... ..	347
—, Renal ... ..	179
Hæmorrhages in new-born infants ... ..	386
—, Visceral, in the fetus ... ..	385
Hay fever, The treatment of an acute attack of ... ..	445
Headache ... ..	103
Heart and circulation, Diseases of the ... ..	1
Heart disease, Death in pregnancy from ... ..	352
—, Diet in chronic ... ..	15
—, Simple dilatation of ... ..	20
—, The tobacco ... ..	27
Heberden's nodes, Relation of, to gout ... ..	186
Heredit in Graves's disease ... ..	35
Hernia ... ..	243
—, Cases suitable for radical treatment of... ..	273
—, Radical treatment of inguinal, in girls ... ..	272
—, Two cases of inguinal, in infants cured by diet alone ... ..	275
—, Ventral ... ..	335
Hip, Treatment of congenital dislocation of ... ..	265
— disease, Preputial reflex disturbances simulating ... ..	273
Horny thickenings of palms and soles, Treatment of ... ..	394
Hydrocele, Ovarian ... ..	318
—, The treatment of, by carbolic acid injection... ..	291
Hydrocephalus, Drainage of ventricles in ... ..	278
Hydrochloric acid in dyspepsia ... ..	139
Hydro-naphthol ... ..	454
Hydro-nephrosis, Phimosis causing ... ..	274
Hyoscine ... ..	92
Hyperpyrexia, Rheumatic ... ..	190
Hypnal or chloral-antipyrin ... ..	92
Hypnotics, Action of some recent, on digestion ... ..	89
Hypnotism ... ..	118
—, Stuporose states following ... ..	120
Hysterectomy, The treatment of pedicle in, by the elastic ligature ... ..	336
Hysteria ... ..	118
Hystero-psy; or, suspension of the uterus to the abdominal wall ... ..	340
Hystriocia baylehuu in diarrhoea ... ..	149

	PAGE
Ichthyol, a contribution to its therapeutics ... ..	397
— varnishes ... ..	393
Icterus ... ..	156
Incus, Extraction of carious, in chronic suppuration ... ..	421
Infants, Hæmorrhages in new-born ... ..	386
—, Induration of sterno-mastoid in new-born ... ..	388
Infectious fevers ... ..	197
Influenza, Phenacetin in ... ..	450
Injections, Antiseptic, in dysentery... ..	150
—, Intravenous, of tuberculin ... ..	54
—, Therapeutic value of intra-ocular and sub-conjunctival ... ..	408
Insane, The private care of ... ..	125
—, Refusal of food in the ... ..	125
Insanity and gynecology ... ..	124
—, The treatment of ... ..	124
Insomnia, The treatment of ... ..	88
Intestinal antiseptics in chronic affections of large intestine ... ..	153
— obstruction ... ..	247
— pills ... ..	154
Intestines, Surgery of ... ..	243
Intra-nasal surgery, The aseptic method as applied to ... ..	446
Intra-ocular and sub-conjunctival injections, Therapeutic value of ... ..	408
— tracheal injections in affections of the respiratory organs ... ..	77
— injections in diseases of the throat and lungs ... ..	434
Intra-tympanic adhesions ... ..	423
— incisions for the relief of fixation of the ossicles ... ..	421
— venous injection of tuberculin ... ..	54
Intubation, Statistics of ... ..	431
Iodide of potassium, Treatment of diphtheria by... ..	202
Iodoform and guaiacol, Injections of, in phthisis ... ..	76
—, Treatment of diphtheria by ... ..	202
Iodphenin ... ..	451
Ipecacuanha in dysentery ... ..	150
Iris, Treatment of prolapse of the, after simple operation for cataract ... ..	413
Iritis, metritic ... ..	412
—, Some indications for paracentesis in the treatment of acute ... ..	412
Iron, sulphate of, and salicylate of sodium in dysentery ... ..	152
Jambul in diabetes ... ..	170
Joints and bones, Surgery of ... ..	225
Keratitis unctata, Treatment of, with salicylate of mercury ... ..	410
Kidney, diabetes, etc., Diseases of the ... ..	159
—, Rupture of pelvis of ... ..	176
Knee, The treatment of genu valgum and other deformities of the ... ..	266
Koch's fluid, The therapeutic action of, on ophthalmic disease... ..	404
Koch on the nature of tuberculin ... ..	42
Koch's treatment in Prussia, Official report on the result of ... ..	54



	PAGE		PAGE
Koch's treatment of tuberculosis	41, 269	Membrane and malleus, Excision of	
— tuberculin, Treatment of lupus		the, for tinnitus and vertigo	422
vulgaris by	390	Meningitis, The treatment of	128
Labour, Cocaine in	371	Mercury, bichloride of, Treatment	
—, Mechanism of normal	361	of diphtheria by	304
—, Impeded by fetal tumour	371	—, Treatment of keratitis punctata	
—, Some recent results from the		with salicylate of	410
study of, by means of frozen sec-		Methyl blue in diphtheria	201
tions and casts	361	— chloride spray	97
—, Third stage of	374	Methylal	92
Lacrimal fistula and rebellious		Methylene blue	109
lacrimal tumours, Treatment of	415	Metritic iritis	412
— organs, Treatment of disease of		Metritis dissecans	346, 376
the	416	Midwifery	350
— tumours and of lacrimal fistula,		Milk, Sterilised	136
Treatment of rebellious	415	Modifications of tuberculin	61
Lactic acid, Treatment of typhoid		Morphine and opium, Action of, on	
fever by	198	the bowel	153
Laparotomy in tubercular peritonitis	270	Morphinism	123
—, Repeated, on the same subject	334	Mouth and tongue, Surgery of	237
Laryngeal croup, Treatment of	435	— wash, An antiseptic	430
œdema, Pilocarpine in severe	433	Muscular spasm, The treatment of	113
Laryngitis, Acute, caused by canteri-		Myopia, Operative treatment of high	
sation with iodide of mercury	435	degrees of	415
—, Treatment of, in vocalists	433	Naphthalin in dysentery	151
Larynx, Tuberculosis of, treatment of		—, Treatment of typhoid fever by	19
by pyoktannin	434	— as a vermifuge	152
Leiter's coil in mastoid disease	424	Naphthol (B. naphthol), Benzoate of	451
Leucemata, Treatment of	408	—, Treatment of typhoid fever by	197
Leukemia in its relation to pregnancy	352	Nasal septum, Treatment of devia-	
Life-saving methods in still-births	382	tions of the	444
Liver, Surgery of	253	— duct, Treatment of stenosis of	
Locomotor ataxia, The treatment of	115	the	415
—, The use of suspension in and		Nausea and vomiting	146
the treatment of	113	Nerves, Surgery of	224
Lunacy Act, New	124	Nervous system, The diseases of	87
Lungs and organs of respiration,		—, The treatment of syphilis of	
Diseases of the	39	the	301
Lupus erythematosus of the eyelids		Neurasthenia of gastric origin	117
and face, Treatment of	393	— and hysteria, The treatment of	116
— vulgaris, Treatment of, by Koch's		Newly-born children, The treatment	
tuberculin	390	of pyrexia in	383
— and scrofuloderma, Treatment of	392	Nose, Treatment of diseases of the	
Lying-in period, Tetanic spasms during	378	accessory cavities of the	447
Lymphatic glands, Surgery of	225	Obstetric paralysis of infants	281
Malefern	152	Edema of the lung following thoraco-	
Malignant growths past operation,		centesis	86
Treatment of	219	—, Paroxysmal pulmonary, in	
Mania, Collapse after acute	126	Bright's disease	161
Massage in dyspepsia	139	—, Pilocarpine in severe laryngeal	433
Mastoid cells, Tapping the	425	—, Rheumatic	191
disease	426	Olive oil as a cholagogue	156
—, Leiter's coil in	424	Operating, New methods of	207
— process, Opening of the	424	Ophthalmia neonatorum, Prophylaxis	
— retractor	426	of	405
Massage and electricity	120	Ophthalmic disease, Therapeutic	
Meatus, Dry	419	action of Koch's fluid on	404
—, Foreign bodies in the	418	Opium and morphine, Action of, on	
Measles, Endocarditis in	191	the bowel	153
Melancholia and gout	186	Orthopædic surgery	258
Membrana tympani, Collapsed or re-		Ossicles, Intra-tympanic incisions for	
laxed	419	the relief of fixation of the	421
—, Healing of perforations of	419	Osteitis of the process, Seton's, for the	
the	419	relief of mastoid pain, associated	
—, Perforation of the	419	with sclerosina	424

	PAGE		PAGE
Osteo-malacia, The nature and treatment of ...	333	Pills, Intestinal ...	154
Osteo-myelitis, Acute, Treatment of ...	227	Pilocarpine in dryness of the tongue ...	430
Osteotomy, Curved linear, for the treatment of ankylosis of the knee in children ...	267	— in severe laryngeal oedema ...	433
Otorrhoea ...	419	— in tetanus ...	112
Ovarian hydrocele ...	318	Piperazine ...	186
— tumours, Remote recurrence of ...	315	Placenta prævia ...	368
Ovaritis, Chronic ...	317	—, Retention of ...	375
Ovariectomy during pregnancy ...	354	Plastic surgery ...	212
Ovary, Abscess of the ...	315	Pleuritic effusion, Antipyrin in ...	84
Oxygen, The inhalation of, in pneumonia ...	40	Pleural effusions, Operative treatment of ...	235
Ozone and fertility ...	347	Pleuritic purulent effusions, The course and treatment of ...	85
Palpitation ...	26	Pneumonia in pregnancy ...	40
Pancreas, Surgery of ...	256	—, The inhalation of oxygen in ...	40
Paracentesis, Some indications for, in the treatment of acute iritis ...	412	—, production of immunity against, and the cure of ...	39
Paraffin, Treatment of diphtheria by ...	203	Polyn neuritis, The treatment of ...	128
Paraldehyde, The craving for ...	124	Polyuria in pregnancy ...	351
—, in tetanus ...	112	Post-partum shock ...	374
Paralysis, Obstetric, of infants ...	281	— prostatic pouch, The importance of the, in the surgery of vesical calculus ...	287
—, Treatment of post-diphtheritic ...	431	Potts' disease, Paraplegia in ...	273
Paraplegia in Potts' disease ...	273	Pregnancy, Albuminuria in the latter months of ...	161
Parturition and pregnancy, after Alexander's operation ...	341	—, Death in, from heart disease ...	352
Perforations, Healing of ...	419	—, Ectopic ...	356
Perforation of the membrana tympani ...	419	—, Excessive vomiting of ...	354
Pericarditis, Acute ...	3	—, Leukæmia in its relation to ...	352
—, Incision for suppurative ...	3	—, Ovariectomy during ...	354
—, Purulent: pericardiectomy ...	234	— and parturition after Alexander's operation ...	341
Pericardiectomy and drainage in purulent pericarditis ...	234	—, The pathology of ...	351
Peritonitis ...	238	—, physiology of ...	350
—, Acute ...	270	—, Pneumonia in ...	40
—, following enemata in dysentery ...	151	—, Polyuria in ...	351
—, Laparotomy in tubercular ...	270	—, Tetanus in its relation to ...	353
—, Tubercular ...	270	Prison dietary ...	138
Perityphlitis ...	249	Prolapse of the mucous membrane of the urethra ...	348
Pernanganate of potash as a urinary test ...	181	— iris, Treatment of, after simple operation for cataract ...	413
Peroxide of hydrogen, Treatment of diphtheria by ...	200	— rectum, The treatment of complete ...	295
Petersen's rectal bag, On the use of ...	289	Prolapsus of the rectum, A new operation for ...	292
— bag, Rupture of the rectum by ...	299	Prostate, The operative treatment of enlarged ...	283
Petroleum, Treatment of conjunctivitis by crude ...	405	Prostatics and their treatment ...	286
Phenacetin in influenza ...	450	Prostatitis, Chronic ...	287
Phenocoll hydrochlorate ...	450	Pseudo-paralysis of infants, The treatment of syphilitic ...	303
Phimosis causing hydro-nephrosis ...	274	Ptosis, A new operation for congenital ...	405
Phloroglucin-vanillin and allied reagents ...	140	—, Puerperal eclampsia ...	363
Phthisical sore throat, Ergot in ...	432	— pyrexia, Antipyrin in ...	378
Phthisis, Antifebrin in the fever of ...	79	— state, The ...	376
—, Camphoric acid in the sweating of ...	80	Puerperium, Acute goitre during the	378
—, Cantharidin in ...	456	Pulmonary cavities, The open treatment of ...	82
—, Chronic, The influence of acute febrile diseases on ...	81	Zyeltis, Hæmorrhagic, after passage of a renal calculus ...	178
—, Hypodermic injections of guaiacol and iodoform in ...	76	Pyoktannin ...	420
—, Tellurate of sodium in the sweating of ...	81	—, Treatment of tuberculosis of the larynx by ...	434
—, The treatment of, by artificial atmospheres under pressure ...	79	Pyrexia, Antipyrin in puerperal ...	378
		—, The treatment of, in newly born children ...	383



	PAGE		PAGE
Quinine, Sulphate and hydrochloride of ... ..	130	Salpingitis and gonorrhoea ... ..	331
—, Treatment of whooping cough by ... ..	205	Salpingo-oophorectomy ... ..	321
Rachitic curvature of the spine, Treatment of ... ..	260	Sarcoma, Primary of cervix uteri ... ..	344
Rectum, Diseases of the ... ..	292	Scarlet fever, Treatment of ... ..	200
—, Extirpation of syphilitic stricture of the ... ..	298	Sciatica ... ..	101
—, Operation for complete prolapse of the ... ..	294	Scrofuloderma and lupus, Treatment of ... ..	392
—, A new operation for prolapsus of the rectum ... ..	292	Senile heart, Diet in ... ..	15
—, The newer operations for cancer of the ... ..	297	—, Treatment of ... ..	19
—, Rupture of the, by Petersen's bag ... ..	299	Septic infection following urethral operation ... ..	290
—, The treatment of complete prolapse of the ... ..	295	Septum nasi, Treatment of abscess of the ... ..	444
—, prolapsus by raising the lower part of the rectum ... ..	295	Setons for the relief of mastoid pain, associated with sclerosing osteitis of the process ... ..	424
Renal hæmophilia ... ..	179	Sexton's operation ... ..	421
Resection of lung in incipient tuberculosis ... ..	83	Shock, Post-partum ... ..	374
Resorcin in gastro-enteritis ... ..	149	Skin, Diseases of the ... ..	388
— and antifebrin, Treatment of typhoid fever by ... ..	199	—, On the value of antimony in various inflammatory affections of the ... ..	396
Retina, Treatment of detachment of the ... ..	414	Small-pox, Treatment of, by ether and opium ... ..	200
Retractor, Mastoid ... ..	426	Somnal or ethyl chloral urethane ... ..	93
Rheumatic arthritis, Nosological position and relations of chronic ... ..	194	Speculum, A new vesical, for use in supra-public cystotomy ... ..	289
— œdema ... ..	191	Spinal cord and spine, Surgery of ... ..	231
—, Subcutaneous, nodules ... ..	191	— irritation in neurasthenia ... ..	116
Rheumatoid arthritis, Treatment of ... ..	194, 196	Spine, Treatment of lateral curvature of the ... ..	258
Rheumatism, The fever of ... ..	189	—, Treatment of posterior rachitic curvature of the ... ..	260
—, Flat foot as a sequela of ... ..	192	Spleen, Surgery of ... ..	255
—, Pathology of ... ..	188	Staphylooma, Operative Treatment of ... ..	410
—, Treatment of ... ..	192	Status epilepticus, The treatment of ... ..	107
—, gonorrhœal ... ..	311	Stenosis of nasal duct, Treatment of ... ..	415
Rhinitis, The treatment of atrophic ... ..	446	Sterilised milk ... ..	136
Rhino-laryngeal surgery, Electricity in ... ..	445	Sterno-mastoid, Induration of, in new-born infants ... ..	386
— pharyngeal operations or cauterisations, Dangerous aural complications resulting from ... ..	427	Still-births, Life-saving methods in ... ..	382
Rhubarb, Hæmaturia after ... ..	179	Stomach, intestines, liver, etc., Diseases of ... ..	130
Rickety deformities, Treatment of ... ..	268	Stomach, Surgery of ... ..	241
Rose, Red, in diarrhoea ... ..	149	Stone in the bladder ... ..	287
Rupture of pelvis of kidney ... ..	176	Stricture of the rectum, Extirpation of syphilitic ... ..	298
— of the uterus ... ..	369	—, Action of, on cerebral cortex ... ..	127
Salicylate of mercury, Treatment of keratitis punctata with ... ..	410	— in tetanus ... ..	112
— of sodium in diabetes ... ..	169	Sub-conjunctival and intra-ocular injections, Therapeutic value of ... ..	408
— of sodium and sulphate of iron in dysentery ... ..	152	Sulphonal ... ..	93, 106, 455
Salicylates and iron, Treatment of diphtheria by ... ..	204	— in diabetes ... ..	170
Salicylic acid ... ..	452	Sulph-aldehyde ... ..	93
Salicyl-sulphonic acid as a test for albumen ... ..	181	Suppuration of middle ear, Extraction of carious incus in chronic ... ..	421
Salol, Action of, on the kidneys ... ..	164	Supportive pericarditis, Incision for ... ..	3
— in diarrhoea ... ..	149	Surgery, General ... ..	207
— in typhoid fever ... ..	198	Surgical diseases of children ... ..	269
		— relations of gout ... ..	185
		Suspension, The use of, in chronic nervous disorders and the treatment of locomotor ataxia ... ..	113
		Syphilis, Energetic inunctions in cerebral ... ..	302
		—, Intra-muscular injections of salicylate of mercury ... ..	306
		—, The general treatment of ... ..	300

	PAGE		PAGE
Syphilis of the nervous system, The treatment of ...	301	Tuberculin, Effects of, on animals ...	71
—, The treatment of nerve, by intramuscular injections of perchloride of mercury ...	303	— in internal tuberculosis, Diagnostic value of ...	55
—, The treatment of, by intramuscular injections of thymol-acetate of mercury ...	304	—, Intravenous injection of ...	54
—, On the treatment of, with mercury succinimide ...	305	—, Koch on the nature of ...	42
—, The treatment of, by protoiodide of mercury ...	304	—, Modifications of ...	61
		—, Pathological changes produced by ...	67
Tachycardia ...	25	—, Treatment of lupus vulgaris by Koch's ...	390
—, Electricity in ...	26	— in throat diseases ...	436
Tellurate of sodium in the sweating of phthisis ...	81	— in connection with urinary tuberculosis ...	291
Tendon suture ...	220	—, The use of, combined with the surgical treatment of cavities ...	236
Tendons, Treatment of divided ...	264	Tuberculosis, Brown-Séquard's fluid in ...	76
Tetanic spasms during the lying-in period ...	378	—, Cantharidinate of potash in ...	73
Tetanus, Carbolic acid in ...	111	—, Diagnostic value of tuberculin in internal ...	55
—, Chloral hydrate in ...	111	—, Injection of dogs' serum in ...	75
— following dilatation of stomach ...	145	— goats' blood in ...	74
— and muscular spasm, The treatment of ...	110	— Koch's treatment of ...	41, 269
— in its relation to pregnancy ...	353	— of the larynx, Treatment of, by pyoktannin ...	434
Thallin, Treatment of typhoid fever by ...	198	—, Resection of lung in incipient ...	83
Theobromine sodium salicylate ...	173	Tuberculous sequestrum removed from the neck of femur without injury to the joint ...	275
Therapeutics of the year 1890-91, Summary of ...	448	Tubo-ovarian cyst and allied conditions ...	317
Thoraco-centesis, Œdema of the lung following ...	86	Tumour Labour impeded by fetal ...	371
Throat and lungs, Intra-tracheal injections in diseases of the ...	434	Turpentine, Ozonised, in icterus ...	156
— and nose, Diseases of the ...	429	Tympanum, Cholesteatoma of ...	422
Thyroid, Cachexia strumipriva after removal of the, for goitre ...	432	Typhoid fever, Treatment of ...	197
—, Surgery of ...	233		
Tinnitus and vertigo, Excision of the membrane and malleus for ...	422	Ulcer, Gastric ...	143
Tobacco heart, The ...	27	Ūræmia in the apparently healthy ...	162
Tongue and mouth, Surgery of ...	237	—, Treatment of ...	163
—, Pilocarpine in dryness of the ...	430	Uralium or chloral urethane ...	95
Tonsillitis, Operative treatment of suppurative ...	431	Urea, Estimation of, in urine ...	182
—, Rheumatic ...	192	Urethane in tetanus ...	112
Toxic cardiac disturbance ...	27	Urethral operation, septic infection following ...	290
Tracheotomy, Chloroform in ...	280	Urethra, Prolapse of the mucous membrane of the ...	348
—, Influence of, on affections of the larynx ...	435	Urinary tests ...	181
Trichloracetic acid in affections of the nose and throat ...	445	— test, Permanganate of potash as a ...	181
— as a test for albumen ...	181	— tuberculosis, Tuberculin in connection with ...	291
Tubal abortion ...	357	Urine, The, in epileptoid fits ...	164
— disease ...	319	—, The toxic power of, in gravid women ...	350
Tube cysts, Thick-walled ...	333	Uterine fibroids ...	342
Tubercle in general, Treatment of ...	213	Uterus, The effect of galvanism on ...	344
Tubercular throat conditions, Action of salts of cantharidin on ...	441	—, Extirpation of cancerous, after delivery ...	379
Tuberculin, The direct application of, to pulmonary cavities ...	237	—, Primary sarcoma of the cervix of the ...	344
—, Discussion on, at the Berlin Medical Society ...	43	—, Removal of, for pelvic suppuration ...	333
— London ...	59	—, of, for fibroids ...	335
— Royal Medical and Surgical Society ...	57	—, Rupture of ...	369
		—, Suspension of the, to the abdominal wall or hysteropexy ...	340
		—, Vaginal fixation of retro-displaced ...	341



	PAGE		PAGE
Vaginal fixation of retro-displaced uterus ... ..	341	the post-prostatic pouch in the surgery of ... ..	287
Vaginitis with gas cysts .. ..	348	Vomiting, Excessive, of pregnancy ... ..	354
Valvular disease, Diet in chronic ... ..	17	— and nausea ... ..	146
Varnishes, Ichthyol ... ..	398		
Venereal diseases ... ..	300	Warts, Treatment of ... ..	383
Venesection in cardiac diseases ... ..	14	Whooping-cough, Treatment of ... ..	205
Ventricles, Drainage of, in hydrocephalus ... ..	278	Women, The diseases of ... ..	315
Ventral hernia ... ..	335	Wounds of the cornea, The indications for suture in ... ..	409
Vermifuges ... ..	152	Wry-neck, Treatment of congenital ... ..	261
Vertigo and tinnitus, Excision of the membrane and malleus for ... ..	422	— —, Treatment of spasmodic ... ..	260
Vesical calculus, The importance of		Zinc, Sulphite of ... ..	452













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